

A CAREER IN ANIMAL SCIENCE

WHAT IS ANIMAL SCIENCE?

Animal Science is concerned with the science and business of producing domestic livestock species, including but not limited to beef cattle, dairy cattle, horses, poultry, sheep, and swine. An animal scientist applies principles of the biological, physical, and social sciences to the problems associated with livestock production and management. Animal Science is also concerned with foods of animal origin: meat, dairy foods, and eggs. The food industry is one of the largest and most important industries in the United States. In addition, animal science is concerned with aspects of companion animals, including their nutrition, care, and welfare.

If you are interested in efficient production of food animals, processing and consumption of high-quality meats and dairy products, use of companion animals for recreation or leisure purposes, or the maintenance of animal health and well-being, then a career in one of the many animal sciences fields may be your key to a rewarding future. Professional education and training in the animal sciences can prepare you for challenging career opportunities in such areas as animal production, breeding, health maintenance and disease control, marketing, processing, distribution, and numerous allied service industries. Additionally, it is a convenient major for biologists interested in animals and an eventual career after veterinary, medical, dental, or graduate school.

Animal scientists must have formal training and appropriate experience to learn and apply the complex principles involved in animal production, care, and use. Knowledge of such basic subjects as animal behavior and management, genetics, microbiology, nutrition, physiology, reproduction, and meat science is essential to persons entering most animal sciences professions. However, a farm or animal-related background is not required.

Global forces are demanding more from the agriculture industry. A growing world population with changing patterns of diet requires more food. This food production must take place on a finite amount of land during climatic change. It must be integrated with the needs of people and the environment. The complex challenges of the next century demand agricultural professionals who can identify opportunities and devise innovative solutions. The broad knowledge base in animal science prepares students for rewarding careers.

WHAT WILL YOU STUDY?

Education in Animal Production, Care, and Use

Students enrolled in animal sciences curricula receive a firm background in the biological and natural sciences. This foundation is essential for understanding the principles of animal breeding, reproductive physiology, nutrition, meats and muscle biology, growth and mammary physiology, genetic engineering, molecular biology, and management of livestock and companion animals. Students can also gain expertise in the processing, quality control, product development, and marketing of meat, dairy, and poultry products.

So that animal sciences students can understand and fully appreciate the entire scope of agriculture, most programs of study offer a flexible choice of support courses in food science, forage and crop production, agricultural engineering, and agricultural economics. A well-rounded program of study also will permit students to focus on such related disciplines as computer science, economics, business, and

communications. Programs of study are designed to give students a broad knowledge of animal and poultry production as well as the application of modern technology within agriculture systems.

Programs may emphasize:

- sustainable production systems and management
- animal behavior and welfare
- physiology
- biotechnology (e.g. growth, meat quality, immune system modulation)
- genetics, molecular genetics
- computer modeling
- nutrition (biochemistry, feeds and feeding evaluation)
- pasture management and forage production

OPPORTUNITIES FOR GRADUATE/PROFESSIONAL COLLEGE STUDY

Each year, many students elect to begin graduate/professional study immediately following the completion of their undergraduate degree. The student must maintain a strong academic record and complete courses that are deemed appropriate for the particular area of graduate study. Graduate studies in animal science disciplines, as well as professional study in law, veterinary medicine, and business administration, are among the most commonly chosen programs by students and graduates.

Graduate (MS/PhD) Programs

The plan of study for each degree program is determined by the student and his/her advisory committee composed of faculty from the university the student chooses to attend. In the Master of Science degree programs, students are expected to take courses in areas that support their discipline or interest, that are above and beyond the courses normally required for a B.S. degree in that major or closely related major. For the Ph.D. degree, students take courses related to their major that are beyond those for the Master of Science degree. The emphasis is usually on research at the Ph.D. level.

Admission requirements for graduate study vary greatly among the different fields of study. Similarly, there is not a centralized admission process for applying to a graduate program within the Colleges of Agriculture. Each university handles its own application processing. Applications are usually for both admission and financial assistance in the form of fellowships or assistantships. Students are encouraged to contact the specific university in which they are interested. Graduate admissions personnel within each unit are also an excellent source of information on graduate programs in that discipline.

CAREER OPPORTUNITIES

Students earning a B.S. degree with a major in animal science are qualified for a wide variety of challenging careers. In fact, there are over 500 different job classifications for animal science graduates. Graduates find employment in academic teaching and research, industrial research in the food and feed industries, in laboratory research programs with governmental and international agencies, private corporations, and in industrial or institutional management positions requiring a high level of scientific training. In government positions, graduates can help draft regulations governing the agriculture industry, or work directly in research. Other traditional employment can be found with feed manufacturers, animal breeding companies, meat packers, pharmaceutical companies, consulting firms, universities, or in primary production. An agricultural science degree is also the gateway to a multitude of possibilities in the growing agricultural biotechnology industry.

What Career Opportunities Are Available?

By majoring in animal sciences, you can prepare yourself for one or more of the many careers related to animal agriculture. Depending on the particular program of study you choose, rewarding career opportunities are available in business, industry, government, education, and research:

Allied animal industries such as feed and equipment manufacturers, artificial breeding associations, pharmaceutical firms, meat processors, and food distributors employ animal scientists in various technical, managerial, administrative, public relations, and sales positions.

Breeding and livestock marketing organizations employ animal scientists as field representatives, managers, consultants, market forecasters, and public relations specialists.

Extension educators with animal sciences training find professional teaching positions as state and area livestock specialists and county agricultural agents.

Food processors, meat packers, and related industries seek persons with meat science background for positions in management, product and process development, purchasing, quality assurance, technical and consumer services, advertising, and sales.

Formal training in the basic animal sciences provides essential background for professional careers in veterinary medicine.

Government agencies employ persons with undergraduate or advanced training in the animal sciences as administrative or technical specialists in livestock marketing, forecasting, environmental regulation, animal health, disease control, meats inspection, and public information.

Livestock breeders and feedlot operators seek persons with strong animal sciences and business training for positions in production management, animal nutrition, physiology, and behavior.

Researchers and laboratory technicians are employed by many government agencies and private firms, working in such specialized fields as animal breeding and reproduction, health maintenance and disease control, animal nutrition, computer modeling, animal housing, waste management, environmental quality, and processing, handling, and quality control with meat, milk, eggs, and other animal products.

Self-employed persons with animal sciences training develop professional careers in such diverse fields as farm and feedlot operation, management services, consulting, livestock marketing, animal breeding, and kennel or clinic operations.

State and national organizations such as the National Cattlemen's Association, National Pork Producers Council, the National Dairy Herd Improvement Association, and others employ animal scientists to promote, educate, and work in the public sector with consumers of animal products; other service organizations employing animal scientists in educational, communications, and public relations roles include banking, insurance, and real estate firms.

Universities, colleges, and other educational organizations employ persons with advanced animal sciences training as teachers, researchers, laboratory technicians, and extension specialists.

Vocational agriculture educators with animal sciences backgrounds find professional careers in secondary schools, area vocational centers, and community colleges.

Writers and communicators with animal sciences training are employed by the various animal industries in advertising, publications work, and public information activities.

Zoos, kennels, animal clinics, horse farms, animal preserves, and similar facilities offer many positions as animal caretakers, technicians, gamekeepers, and veterinary assistants.

Recent advances in genetic engineering, molecular biology, and other biotechnology areas relating to animal production, care, and use underline the significant changes in today's animal agriculture and its growing importance to society as a whole. As new career opportunities emerge, many trained animal scientists will be needed to assume these challenging roles.

JOB TITLES

Livestock Production Manager (Swine, Poultry, Beef, Sheep, Dairy)
Animal Health Product Sales
Feed Sales/Management
Livestock Equipment Sales/Mgt
Livestock Procurement
Field Representative
Consultant
A.I. Breeding Technician
Livestock Feedlot Operator
Research and Lab Technician
Public Relations Specialist
Market Forecaster
Sales
Technical Representative
Teacher
Researcher
Extension Specialist
Livestock Marketing Specialist
Housing & Environmental Quality Specialist
Livestock Insurance Representative
Animal Scientist
Food/Meat Product Development
Quality Assurance
Food Service Management
Farm Management
Dairy Equipment Specialist
Stable Management
Market Reporter
Meat Grade
Financial Analyst
Financial Representative

TYPES OF EMPLOYERS

Self employed
Feed companies
Animal health firms
Livestock equipment companies
Commercial feedlots
Food/meat processing companies
Universities
Private research firms
Breeding firms
Marketing/commission firms
Insurance companies
Companion animal industry
Stockyard companies
Purebred breed associations
Poultry processors
Zoos
Community colleges
Riding stables
Racetracks
Livestock publications
Radio/TV stations
Veterinary supplies
Federal and State government
Grain companies
Commercial banks
Farm organizations

LIVESTOCK PRODUCTION

Beef cattle

- Cow/calf operations
- Stocker or grower programs
- Feedlot

Dairy

- Milk production

Swine

- Farrowing operations
- Grower/finisher operations
- Farrow to finish

Sheep

- Ewe flocks
- Wheat pasture growing/finishing programs

Poultry

- Broiler production
- Egg production

Horses

- Mare Breeding Farm
- Training facility

Livestock feed

- Production
- Sales
- Distribution

Veterinary Medicine

- Practice
- Research
- Product development
- Teaching
- Inspection (meat or dairy foods)
- Production
- Product development
- Quality control

Distribution and marketing

- Livestock promotion and marketing
- Breed organizations
- Livestock publications
- Livestock sales
- Market reporting

Sales

- Feed
- Pharmaceuticals
- Agricultural chemicals
- Livestock supplies

Management

- Livestock production enterprises
- Sales/marketing companies
- Food production/distribution

Financial institutions

- Banks
- Lending agencies

Service organizations

- Extension
- Agriculture agents
- 4-H agents

Teaching (high school, junior college or university)

Feed/slaughter inspection

Private consulting

Technology development and application (Biotechnology)

Laboratory technical support

Animal caretakers

Research scientists

Genetics and Animal Breeding

Population genetics

Molecular genetics

Genetic engineering

Reproductive management

Endocrinology

Cloning

Embryo technology

Nutrition

Feeding programs

Nutrition/reproduction interactions

Nutrition/health/immunity interactions

Food Science

Product development

Food processing

Fermentation

CAREER PLANNING AND PROFESSIONAL DEVELOPMENT: CAREER TOOLS

FASS Job Resource Center; <http://www.fass.org/job.asp>

Lists all jobs currently advertised in both the Journal of Animal Science and the Journal of Dairy Science, as well as industry internships.

America's Job Bank; <http://www.ajb.dni.us/>

Links the 1,800 State Employment Service offices. It provides job seekers with the largest pool of active job opportunities.

Catapult; <http://www.jobweb.org/catapult/catapult.htm>

Links to job listings, internships, post graduate options, and provides information on help guides and career library resources.

College Grad Job Hunter; <http://www.collegegrad.com/>

This site is an online version of the print guide. It is designed to give college students and college graduates one-stop shopping for jobs on the Internet.

Contact Center Network; <http://www.idealists.org/>

A nonprofit, non-partisan organization that has the most comprehensive directory of nonprofit resources on the Internet, with links to over 5,000 sites arranged by issue and geographic region.

FedWorld; <http://www.fedworld.gov/jobs/jobsearch.html>

This site contains a service that allows you to search a database of about 1,500 U.S. Government job announcements updated 5 days a week.

JobWeb; <http://www.jobweb.org/>

Sponsored by the National Association of Colleges and Employers, this site provides information about entry-level jobs as well as industry information.

Guide to Job Resources on the Internet (Riley); <http://www.dbm.com/jobguide/>

A listing of job resources in such areas as business, internships, government, science, environment, social sciences and many more. Resources are accessible by state and international areas.

Find a job, scholarship, career information, or post your resume at Jobtrak; <http://www.jobtrak.com/>

Monster.com, Online Career Center; <http://www.occ.com/>

An enormous database of job listings that can be searched by geographic regions or key words. There is a resume bank where you can submit your resume at no cost via e-mail.

CareerPath; <http://www.careerpath.com>

This site includes job advertisements placed in the following major U.S. newspapers: The Boston Globe, Chicago Tribune, Los Angeles Times, The New York Times, San Jose Mercury News, The Washington Post, Philadelphia Inquirer, and the Southern Florida Sun-Sentinel. You will need to register your name at no charge.

CareerWeb; <http://www.cweb.com/resources/>

This site hosts information for both the job seeker and employer/agencies. Also contains a database searchable by state and category.

Adams JobBank Online; <http://www.careercity.com/>

Current openings listed in computers, finance-consulting, general management, healthcare, office, sales/marketing/public relations, education, social work, and technical non-computer related.

Career Mosaic; <http://www.careermosaic.com/>

Job listings can be searched by key word or select a company and view their current available positions. Information about companies is included. Resumes are accepted for inclusion in their resume bank at no charge.

Chronicle of Higher Education Job Openings; <http://chronicle.com/jobs/>

Openings for various positions in higher education. Search using by job listing, area, or key word. Site includes search for outside the U.S.

Foundation Center; <http://fdncenter.org/>

The Center's mission is to foster public understanding of the foundation field by collecting, organizing, analyzing, and disseminating information on foundations, corporate giving, and related subjects.

International Science Employment; <http://www.nature.com/naturejobs/>

Job listings including both teaching opportunities and post-doctoral and research assistant positions.

Scholarly Societies Project; <http://www.lib.uwaterloo.ca/society/overview.html>

A comprehensive list by subject area of scholarly societies that can lead to potential contacts for employment.

RESOURCES FOR RESEARCHING EMPLOYERS AND CAREERS

Occupational Outlook Handbook; <http://stats.bls.gov/ocohome.htm>

Provides job descriptions of more than 300 occupations, that together account for 91 percent of all the jobs in the nation.

Yahoo-Business and Economy-Companies; http://www.yahoo.com/Business_and_Economy/Companies/

This site is a large listing of organizations and companies arranged by broad subject category.

Big Book; <http://www.bigbook.com/>

The yellow pages at your fingertips. One can look up any job category, search by state and/or city and get the name of an organization, address, and phone number.

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