

FOOD ANIMAL VETERINARY CAREER INCENTIVE PROGRAM (FAVCIP)

Overview

In recent years, new veterinary graduates have shown a declining interest in food supply veterinary medicine in both private and public practice. Opportunities in public practice include food safety and inspection, communicable disease management, and regulatory veterinary medicine. There has been a growing shortage of new graduates with expertise in food animal species entering research and teaching careers, and in diagnostic laboratory practice. In addition, many practitioners and producers have found it difficult to recruit new graduates into food animal practice, especially in rural communities.

Reduced veterinary participation in food supply veterinary medicine may contribute to increased vulnerability of livestock industries to emerging infectious diseases, exotic and zoonotic diseases, public health risks from food safety and quality problems, lowered public confidence in animal agricultural products, as well as threats to the national economy. A shortage of veterinarians to serve these sectors may lead to a loss of veterinary expertise and skills necessary to educate future generations and to advance scientific discovery necessary to future agricultural production improvements and responsiveness to veterinary and economic challenges.

The overarching goal of the FAVCIP program is to create a sustainable source of future veterinarians for underserved disciplines and geographic regions central to the future of safe and successful food animal production. It should be noted this Program is not a guaranteed route for entry into the DVM Program.

Program Objectives

1. To provide an incentive and a clear academic pathway for students desiring a veterinary career in food supply veterinary medicine.
2. To admit up to five candidates per year based on their experiences and interests in pursuing a career in food supply veterinary medicine.
3. To devise a plan of academic work, experience, and mentoring that encompasses undergraduate and veterinary medical education and meets specific needs of animal agriculture. Completion of this program at Colorado State University (CSU) will result in certification as a *CSU-FAVCIP-certified* applicant.
4. To provide a continuous supply of new veterinary graduates with skills, experiences and expertise in livestock medicine and management. These new graduates will immediately be able to provide valuable service to modern animal agriculture and will be prepared to continually grow and improve as health professionals.

Examples of professional veterinary service to animal agriculture include private food animal practitioners, mixed animal private practitioners (with at least half of the practice being with food animals/animal agriculture), veterinarians working in corporate agribusiness, technical service veterinarians working with animal health industries, pathologists working in diagnostic laboratories, food animal veterinarians on university faculties, and veterinarians in public practice such as veterinary medical officers employed by state or federal governments.

Eligibility

Candidates must be ***CSU-FAVCIP-certified*** by meeting the program requirements established by the Colleges of Agricultural Sciences and Veterinary Medicine and Biomedical Sciences (CVMBBS) at Colorado State University. See “Program Requirements for CSU FAVCIP Certification” (as stated below).

Colorado State University (CSU) undergraduate students who have a strong interest in pursuing veterinary careers in a food animal discipline will be encouraged to follow the FAVCIP curriculum and program requirements as they complete their Bachelor of Science degree in Animal Sciences at CSU. Students should develop an externship/internship plan with their designated adviser in the Department of Animal Sciences no later than end of the second year in the program. When the first externship/internship is satisfactorily completed, those students will qualify for advanced advising and mentoring in the FAVCIP.

Students who qualify for participation in this program, will be advised by the CVMBBS Assistant Dean of DVM Admissions and a designated adviser in the Department of Animal Sciences. Also available for advising is the CSU Health Professions Advising office. This specialized academic and career advising will facilitate enrollment in required Animal Sciences FAVCIP courses, all necessary DVM Program admissions pre-requisite courses, and additional courses essential to their special interests, as well as participation in extra-curricular activities and externship opportunities that will enhance their abilities in food animal husbandry.

Students who successfully complete all aspects of the CSU-FAVCIP program will become ***CSU-FAVCIP-certified*** candidates for admission to the DVM program.

Application and Admission to the DVM Program

1. All ***CSU-FAVCIP-certified*** applicants must apply to the DVM program through the regular admissions process and will be expected to meet all regular preveterinary and application requirements. In addition, ***CSU-FAVCIP-certified*** applicants will need to fill out the FAVCIP section, under combined programs, on the Colorado Supplemental Application. Criteria for admission will be the same as for all other candidates; however, special consideration will be given to applicants' commitment and potential to contribute to the field of food supply veterinary medicine.
2. Admitted ***CSU-FAVCIP-certified*** candidates will receive provisional offers based on successful completion of undergraduate FAVCIP requirements.
3. Non-Colorado resident students enrolled at CSU as undergraduates in FAVCIP may be eligible to convert their domicile to Colorado prior to applying to the DVM Program. Applicants who are domiciled (not the same as residency) in Colorado for one year or more prior to the date of matriculation in the DVM Program are eligible to be included in

the Colorado pool, and if qualified, will have their obligation to pay a support fee funded by the State of Colorado. Questions concerning eligibility for Colorado domicile should be directed to the Colorado State University Office of Student Financial Services, 103 Administration Annex (970) 491-7515, <https://financialaid.colostate.edu/doctor-veterinary-medical-students/>. Please specify that you are applying to the DVM program.

Summary of Key Points of the FAVCIP Program

- **Purpose:** To increase the number of admitted veterinary students who may pursue careers in the food animal industry.
- **Eligibility:**
 - **CSU-FAVCIP-Certified** candidates - complete the requirements of the FAVCIP program at Colorado State University
- **Application:**
 - Submit the VMCAS Application and the Colorado Supplemental Application (same as applicants to the veterinary program)
 - Fill out the FAVCIP section, under combined programs, on the Colorado Supplemental Application

Program Requirements for CSU FAVCIP Certification

1. Successful completion of the undergraduate curriculum outlined below, resulting in award of the Bachelor of Science degree in Animal Sciences at Colorado State University.
2. Students must achieve a GPA of 3.0 or better upon completion of the Program, with a minimum of 24 GPA credits earned for each academic year, as well as a grade of at least 2.0 in any DVM pre-requisite course, in order to remain part of the FAVCIP Undergraduate Program and to qualify for preferred admission to the DVM Program.
3. Completion of at least two food animal experience externships, to be tracked and verified by the Department of Animal Sciences.
4. Letters of recommendation required for the DVM Admissions process must include at least one from a practicing food and fiber production animal veterinarian with whom the FAVCIP student has worked.

Food Animal Veterinary Career Incentive Program Curriculum

	<i>Minimum Semester Credits</i>
BIOLOGICAL SCIENCES	
Laboratory associated with a biological sciences course (BZ111 or LIFE102)	1
Genetics (ANEQ328, ANEQ330, BC353, BC463, BZ350, BZ455, MIP 450, SOCR330)	3
PHYSICAL SCIENCES	
Laboratory associated with a chemistry class	1
Biochemistry (BC351 or BC401)	3
Physics with laboratory (PH121, PH122, PH141, PH142)	5
MATH	
Statistics (upper division course preferred - STAT301 or STAT307)	3
ARTS & HUMANITIES/BEHAVIORAL & SOCIAL SCIENCES	
Successful completion of the Colorado State University All University Core Curriculum (AUCC), as verified by the Preveterinary and Animal Sciences Advisers. [Note: some courses specified in other parts of this table may be used to meet a portion of the AUCC requirements]	See University Core Curriculum (AUCC)
AGRICULTURAL ECONOMICS AND BUSINESS	
Accounting, finance, management, marketing, or business law – reviewed and approved by FAVCIP Animal Sciences Adviser	12
ANIMAL SCIENCES	
Specialized courses to enhance their technical, practical, and business skills in topics related to various aspects of production, marketing, handling, and processing of livestock and their products – reviewed and approved by FAVCIP Animal Sciences Adviser.	40-45

Additional courses which are not required, but are highly recommended include: microbiology, cell biology, developmental biology, anatomy, physiology, histology, nutrition, and other advanced sciences. Given the demands of practice of veterinary medicine in numerous areas of the United States, students may find capability in speaking Spanish to be extremely useful. While it is impossible to require sufficient credits in the curriculum to assure this capability, pursuit of foreign language training, especially in Spanish, is highly encouraged.

SAMPLE COURSE DESCRIPTIONS AT COLORADO STATE UNIVERSITY

BIOCHEMISTRY – ONE OF THE FOLLOWING COURSES:

To fulfill CSU's veterinary program biochemistry prerequisite, an equivalent course must be considered upper division at your institution, it must require organic chemistry (either one semester or two) as a prerequisite, the title must indicate it is primarily a biochemistry course, and it must be the equivalent of 3 semester credits or more.

BC351 - 4 semester credits - Principles of Biochemistry

Prerequisite: BZ110 or BZ120 or LIFE102; CHEM245 or CHEM341 or CHEM345. For majors in biological sciences, engineering, and preprofessional students in the health sciences. Structure and function of biological molecules; biocatalysis; metabolism and energy transduction; gene expression.

BC401 - 3 semester credits - Comprehensive Biochemistry I

Prerequisite: CHEM245 or CHEM343 or concurrent registration in CHEM346; MATH155 or MATH160.

Macromolecular structure and dynamics; membranes; enzymes; bioenergetics

GENETICS – ONE OF THE FOLLOWING COURSES:

To fulfill CSU's veterinary program genetics prerequisite, an equivalent course must be considered upper division at your institution, it must require biology as a prerequisite, the title must indicate it is primarily a genetics course, and it must be the equivalent of 3 semester credits or more.

ANEQ328 – 3 semester credits - Foundations in Animal Genetics

Prerequisite: ANEQ101 or ANEQ102; LIFE 102

Foundational information of the influence of the genome and its genes on qualitative and quantitative traits in animal populations

ANEQ330 – 3 semester credits – Principles of Animal Breeding

Prerequisite: BZ350, ANEQ328 or SOCR330; or at least 3 credits of STAT200-279 or STAT300-379

Genetic principles underlying animal improvement; elementary population genetics, heritability; selection response; mating systems; DNA markers

BC353 – 4 semester credits – Pre-Health Genetics

Prerequisite: BC351

Applies and extends the biochemical concepts learned in BC351 to macromolecules and molecular processes based on nucleic acids

BZ350 - 4 semester credits - Molecular and General Genetics

Prerequisite: LIFE102, BZ110 or BZ120 and STAT201, 301 or 307 – may be taken concurrently

Primarily for students in biological sciences, Mendelian, molecular, and population genetics emphasizing the molecular basis of genetics

BZ455 - 3 semester credits - Human Heredity and Birth Defects

Prerequisites: BZ110, BZ111 or LIFE103

Human heredity and its individual and social implications; causes of congenital defects

BC463 - 3 semester credits - Molecular Genetics

Prerequisites: BC351, BZ350, LIFE201B, BC401 or concurrent registration. Credit not allowed for both BC463 and BC563

Molecular basis of gene structure, replication, repair, recombination, and expression

MIP450 - 3 semester credits - Microbial Genetics

Prerequisite: MIP300 (General Microbiology); BC351 or BC401 or concurrent registration

Principles of genetics at molecular level: mutation, recombination, complementation, suppression, control of gene expression, & recombinant DNA

SOCR330 - 3 semester credits - Principles of Genetics

Prerequisite: BZ110 or BZ120 or LIFE102

Transmission, population, and molecular genetics; practical applications

PHYSICS - ONE OF THE FOLLOWING COURSES:

PH110+PH111 – 4 semester credits - Descriptive Physics + Laboratory

Prerequisite: none for PH110. For PH111, PH110 is a prereq or concurrent registration

Conceptual aspects of physics applied to phenomena in everyday life and to problems in other fields of science. Credit not allowed for both PH110 and PH121.

PH121 - 5 semester credits - General Physics I

Corequisite: MATH125, MATH155, MATH157 or MATH160 – may be taken concurrently (Numerical Trigonometry)

Concepts of force, torque, energy, momentum, work used to cover fluids, waves, sound, temperature, heat; biological, physical examples (noncalculus)

PH122 - 5 semester credits - General Physics II

Prerequisite: PH121 or PH141. Credit not allowed for both PH122 and PH142.

Electricity including electrostatics and simple circuits; magnetism; optics; nuclear physics, radiation; biological, physical examples (noncalculus)

PH141 - 5 semester credits - Physics for Scientists and Engineers I

Prerequisite: MATH126; MATH155, MATH159 or MATH160 may be taken concurrently (Calculus). Students who have had high school physics may enroll in MATH155 or MATH160 concurrently. Credit not allowed for both PH141 and PH121.

Forces, energy, momentum, angular momentum, oscillations, waves, heat, thermodynamics (calculus based)

PH142 – 5 semester credits – Physics for Scientists and Engineers

Prerequisite: PH141 and (MATH161, MATH255, or MATH271 may be taken concurrently). Credit not allowed for both PH142 and PH122.

Electricity and magnetism, circuits, light, optics (calculus based)

STATISTICS – ONE OF THE FOLLOWING COURSES:

STAT301 - 3 semester credits - Introduction to Statistical Methods

Prerequisite: MATH118 (College Algebra).

Techniques in statistical inference; confidence intervals, hypothesis tests, correlation and regression, analysis of variance, chi-square tests

STAT307 - 3 semester credits - Introduction to Biostatistics

Prerequisite: MATH, 117 or 118 or 124 or 125 or 126 or 141 or 155 or 160. Credit allowed for only one course: STAT301, STAT307, STAT309, STAT311.

Biostatistical methods; confidence intervals, hypothesis tests, simple correlation and regression, one-way analysis of variance

NOTE: 200-level Statistics courses that meet All University Core Curriculum requirements may be approved to meet FAVCIP requirement in statistics for this category.

AGRICULTURAL ECONOMICS OR BUSINESS: FROM THE FOLLOWING:

Total of 9 credits in this category that meet the below criteria and are reviewed and approved by FAVCIP Animal Sciences Adviser.

Any one or more AREC or ECON courses (in addition to AREC202 and ECON202) from the Colorado State University Catalog (Note: some AREC and ECON courses do not allow credit for both). Plus any one or more Business courses, Animal Science majors have special access to ACT205, FIN305, BUS205, MGT305, or MKT305.

ANIMAL SCIENCES:

Students must complete the requisite courses from each category of the approved Animal Science Checksheet that includes University Core.

DESIGNATED ADVISERS:

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