University of Alaska Fairbanks (UAF) Courses that meet CSU Veterinary Medicine Prerequisites

Course Code	Credits	Course Title	Co-Requisites	Course Prerequisites (cncr = concurrent enrollment accepted)
BIOLOGICAL SCIENCES - Minimum 1 lab credit associated with a biological sciences course				
Genetics - 3 credits required in this section				
BIOL F260	4	Principles of Genetics	BIOL F260L (lab)	BIOL F115X, F116X, CHEM F105X, MATH F151X, LS F101X (cncr)
Principles of inheritance; physiochemical properties of genetic systems.				
Cell Biology - 3 credits required in this section				
BIOL F360	3	Cell and Molecular Biology		BIOL F260, CHEM F105X, 106X (cncr)
An introduction to the structure and function of cells. Topics include: the structure and function of cellular components, including proteins, membranes and organelles; understanding how cells communicate; and how information is processed in the cell via DNA replication, transcription and translation.				
Anatomy & Physiology I & 2 - BOTH are required to fulfill this prerequisite				
BIOL F111X	4	Human Anatomy and Physiology I	BIOL F111L (lab)	WRTG F111X, MATH F105
Integrated view of human structure and function. Provides a foundation in relevant chemistry, cell biology, histology and unifying concepts. Covers integumentary, skeletal, muscular and nervous systems.				
BIOL F112X	4	Human Anatomy and Physiology II	BIOL F112L (lab)	BIOL F111X
Integrated view of human structure and function. Continuation of Human A&P I. Covers endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems.				
Additional Biomedical Science Courses (Upper Division) - 9 credits required from this section				
BIOL F312	3	Medical Physiology		BIOL F115X and BIOL F116X OR BIOL F111X and BIOL F112X
This course focuses on pathology to teach advanced concepts in human anatomy and physiology. Case studies and diagnostic problem solving will be used to promote the application of knowledge.				
BIOL F335	3	Principles of Epidemiology		STAT F200X
Introduction to the basic concepts of epidemiology, with examples from human to veterinary medicine, including chronic and infectious disease epidemiology, social epidemiology, outbreak investigation, properties of tests, and an introduction to study design and surveillance.				
BIOL F342	4	Microbiology	BIOL F342L (lab)	BIOL F115X, BIOL F116X, CHEM F105X
Morphology and physiology of microorganisms. The role of these organisms in the environment and their relationship to humans. Concepts of immunology. Laboratory stresses aseptic techniques for handling microorganisms.				
BIOL F402	3	Biomedical and Research Ethics		WRTG F111X, WRTG F221X, WRTG F212X, WRTG F213X, WRTG F214X, Jr. or Sr. Standing
Issues in biomedical ethics. Topics will vary but include discussion of moral principles and problems of research ethics and medical ethics, such as: animal and human experimentation; data management; informed consent; therapeutic and non-therapeutic research; physician/patient relationship; autonomy; assisted reproductive technologies; euthanasia; organ transplantation; and allocation of scarce medical resources.				
BIOL F412	3	Exercise Physiology		BIOL F111X and BIOL F112X OR BIOL F310
Physiology responses and adaptation to exercise in humans, emphasizing energy metabolism, adipose and lean tissue, central and peripheral components of oxidative metabolism and the environmental influences on these parameters.				
BIOL F417	3	Neurobiology		BIOL F111X and BIOL F112X OR BIOL F310
Organization and function of the vertebrate nervous system from the subcellular to the organismal levels. Neural bases of sensations, homeostasis, specific behaviors, and psychopathology with the incorporation of current peer-reviewed mammalian behavioral neuroscience research.				
BIOL F431	3	Population Genetics		BIOL F206, STAT F200X OR STAT F300
Processes affecting the distribution of genetic variation in populations of organisms and how it changed through time. Covered topics include characterization of DNA sequence variations, genetic drift, neutral theory, coalescent theory, population substructure, natural selection, inbreeding depression, mating systems and multilocus evolution.				
BIOL F433	3	Conservation Genetics		BIOL F260, Biol F371
Concepts of population genetics, phylogenetics, pedigree analysis, systematics and taxonomy as they apply to conservation of species. Evaluating the impact of small population size, population fragmentation, inbreeding, hybridization, taxonomic uncertainties and other factors on viability and management of species.				
BIOL F435	3	Introduction to Biology of Cancer		BIOL F360
Course covers current concepts and knowledge of cancer, including cancer research and cancer treatment.				
BIOL F460	3	Principles of Virology		BIOL F342 (cncr) OR BIOL F360 (cncr)
This course will explore current concepts in the field of virology, with emphasis on the structure, genetic material, and replication strategies of various human and animal viruses. In addition, mechanisms of viral pathogenesis, viral diagnostics, prevention and treatment of viral infection will be presented.				

BIOL F462	3	Infectious Diseases		BIOL F360 OR BIOL F342
Covers infectious disease biology using examples of different pathogens and exploring the concepts of their biology and the implication of these principles on pathology, epidemiology and sociology of infectious diseases.				
BIOL F463	3	Immunology		BIOL F115X, BIOL F116X, BIOL F310, BIOL F111X, BIOL F112X
Adaptive immune response including its components and activation from cells to molecules, clonal selection, antigen recognition, and discrimination between foreign and self. Concepts applied on the level of intact organisms addressing allergies, autoimmunity, transplantation, tumors and disease.				
BIOL F466	3	Advanced Cell and Molecular Laboratory		BIOL F360 OR CHEM F360 (cncr)
Modern molecular biological techniques including protein and nucleic acid gel electrophoresis, western blotting, cell fractionation, cellular respiration, enzymology and fluorescence microscopy. Lectures will be supplemented with reading from the primary literature. Student projects in this course may satisfy the capstone project requirements of the biological science degree.				
BIOL F491	4	The Human Microbiome		BIOL F260, STAT F200X
Biology of host-associated microbiomes with an emphasis on the human microbiome. Investigate microbial impacts on the behavior, physiology and fitness of their host. Explore model and non-model systems. Student projects in this course may satisfy the capstone project requirements of the biological science degree.				
PHYSICAL SCIENCES - Minimum 1 lab credit associated with a chemistry course				
Biochemistry - 3 credits required from this section, Biochemistry course must require Organic Chemistry as a prerequisite				
CHEM F449	3	General Biochemistry: Metabolism		CHEM F321 (Organic Chemistry I)
This course is an introduction to metabolism at the molecular level and covers the molecular structures and classification of the three major macromolecules: carbohydrates, lipids and proteins. Individual metabolic pathways and regulation will be studied, as well as the big picture and how all the pathways are tied together.				
Physics with Laboratory - 4 credits required from this section				
PHYS F123X	4	College Physics I	PHYS F123L (lab)	High school algebra, trigonometry, and geometry, WRTG F111X, MATH F105
Algebra-based introduction to classical physics, including: kinematics, Newton's laws, momentum, work, energy, gravity, rotational motion, fluids, heat, temperature, laws of thermodynamics. The laboratory part is integrated in the course.				
PHYS F211X	4	General Physics I	PHYS F211L (lab)	Concurrent enrollment in MATH F252X, placement in WRTG F111X
Calculus-based introduction to classical mechanics, including: kinematics, Newton's laws, momentum, work, energy, gravity, rotational motion, oscillations, and fluids. The laboratory part is integrated into the course.				
MATH - 3 credits required from this section				
STAT F200X	3	Elementary Statistics		Appropriate placement score, or a grade of B or better in MATH F105
Introduction to concepts and applications of elementary statistical methods. Topics include sampling and data analysis, descriptive statistics, elementary probability, probability and sampling distributions, confidence intervals, hypothesis testing, correlation, and simple linear regression.				
STAT F300	3	Statistics		Appropriate placement score OR MATH F230X OR MATH F251X
A calculus-based course emphasizing applications. Topics include probability, joint and conditional probability, expectation and variance, parameter estimation (method of moments and maximum likelihood), one and two sample hypothesis tests, simple linear regression and one-way analysis of variance.				
ARTS & HUMANITIES/BEHAVIORAL & SOCIAL SCIENCES				
English Composition - 3 credits required from this section				
WRTG F110	3	Introduction to College Writing		Appropriate placement score OR WRTG F090
Intensive preparatory work in the college writing skills needed for WRTG F111X, including research, writing, revising and critical reading skills. Special fees apply.				
WRTG F111X	3	Writing Across Contexts		Placement into WRTG F111X
An introduction to writing strategies and processes for reading and responding to rhetorical situations across a variety of public and academic contexts.				
WRTG F213X	3	Writing and the Sciences		WRTG F111X
An introduction to what writing is and does and how people learn to do it in the social and natural sciences, with a focus on the disciplinary questions, methods and reasoning that shape the genres and writing practices in the field.				
Arts/Humanities - 12 credits required from this section				
Many options available at UAF				
Electives - 15 credits required from this section				
Many options available at UAF				