

Veterinary Course Requirements

Prerequisite Courses: <i>(with a grade of C- or better)</i>	Minimum Semester Credits
Biological Sciences	
Laboratory associated with a biological sciences course	1
Genetics (must require biology as a prerequisite)	3
Physical Sciences	
Laboratory associated with a chemistry class	1
Biochemistry (must require organic chemistry as a prerequisite)	3
Physics with laboratory	4
Math	
Statistics (upper division course preferred - calculus is not a substitute)	3
Arts & Humanities/Behavioral & Social Sciences	
English Composition	3
Art, dance, English, humanities, foreign language, music, philosophy, speech, theater, anthropology, economics, geography, history, political sciences, psychology, sociology	12
Other	
Electives	30
Total	60

1. In order for a course to fulfill CSU's veterinary prerequisites, the course must be taken at an institution that is accredited by the [council for higher education accreditation](#) (CHEA) and the course description, content level, prerequisites, and number of credits must meet the requirements as stated in this document. Courses taken at vocational and proprietary schools will not be accepted.
2. If after reading our course descriptions (below) you are still not sure if your course will meet our prerequisite requirement, you can submit a [course substitution request](#).
3. Students are encouraged to take additional **upper division biomedical science** courses. The following are not required, but are highly recommended: microbiology, cell biology, developmental biology, anatomy, physiology, histology, nutrition, and other advanced biomedical sciences.
4. You can apply and be admitted under provisional admission before completing all required courses. Keep in mind the admissions committee will only be able to evaluate completed courses at the time you apply since your application cannot be edited after you submit it. If **provisionally admitted, final transcripts must be received by July 15** before the fall semester you would matriculate into the program.
5. It is recommended prerequisite courses be taken within the last ten years, with the exception biochemistry and genetics. It is recommended these be completed within the last 3-5 years. However, the committee will want to see a more recent demonstration of your ability to handle an upper division biomedical science curriculum.
6. **International transcripts (to include Canada)** must be processed through a transcript evaluation service. Only electronically submitted [World Education Services \(WES\)](#) evaluations will be accepted by VMCAS and must be received by VMCAS before SEP 15.

**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: BC401 or concurrent registration or BC351; LIFE201B. 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

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

Prerequisite Course Substitution Request



To request a Course Substitution for one of CSU/s veterinary prerequisite requirements, please use the [Course Substitution Request form](#) to send your course information as an email attachment to DVMAdmissions@colostate.edu. Please fill out every field, including all information requested. If not all information is submitted, your request will be returned for the missing information and will delay the processing of your request.

You will need the following information.

- Institution Name
 - Course title and course number
 - Prerequisite title, if applicable, required for the course listed above
 - Number of credits (indicate semester/quarter)
 - Grade received
 - Course level (FR, SO, JR, SR, GR)
 - Course description
- 1) If your Course Substitute Request is for “**English Composition**”, please write a description of the writing requirement(s) at your Institution and how you fulfilled the requirement.
 - a. “English Literature” does not qualify as an equivalent course.
 - b. **AP English Composition** (not AP English Literature) will fulfill CSU’s veterinary prerequisite requirement of English Composition, if the course appears on an official transcript.
 - c. Completion of a four year degree (ie: bachelor of science) will fulfill CSU’s veterinary prerequisite requirement of English Composition, if completion of the degree appears on an official transcript.
 - 2) If your Course Substitute Request is **approved**, please provide a one-sentence statement to explain the course approval in the “Special Circumstances” section of the Colorado Supplemental Application.
 - 3) Please note:
 - a. CSU **does not grant waivers** for veterinary prerequisite requirements, i.e. applicants must have an “approved” equivalent substitution.
 - b. If you would like to provide **supporting documentation**, please scan and attach to your email message. Please do NOT fax.

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