

Pre-Veterinary Medicine

Specializing your Biology degree at Iowa State University

Have Questions About the Biology Major?
Contact us at 515-294-1064 or biology@iastate.edu
Or visit Student Services in 103 Bessey Hall

Veterinarians provide health care services to non-human animals, including companion animals, livestock, wildlife, and zoo animals. They become skilled in microbiology, pathology, physiology, pharmacology, and surgery. Many veterinarians are private practitioners, but training as a veterinarian can also lead to careers in animal research, public health, food safety, regulatory medicine, and education.

Becoming a veterinarian requires specialized training and licensure, or completing a Doctor of Veterinary Medicine (DVM/VMD). There are many veterinary schools in the United States, and each has somewhat different admissions requirements. We recommend students visit the Association of American Veterinary Medical Colleges website (<http://www.aavmc.org>) to explore programs and learn more about what is needed to become admitted. When pursuing a DVM, some programs offer the option to concurrently earn a master of science (DVM/MS), master of public health (DVM/MPH), or Ph.D. (DVM/Ph.D.).

Although DVM programs do not have a strong preference of undergraduate majors for acceptance into their programs, most veterinarians have majored in a biological science in order to meet the necessary pre-requisites for application. The core courses of the Biology Program (BIOL 211/L, BIOL 212/L, BIOL 312, BIOL 313/L, BIOL 314, BIOL 315) and appropriate advanced courses provide very good preparation for pre-veterinary students. Pre-veterinary students should generally choose supporting coursework that is from the more challenging end of the Biology Program requirements, especially for chemistry. Students may also wish to take courses in business and accounting to prepare for private clinical practice environments. We also strongly recommend practical experience in an animal or biomedical research laboratory, either through an internship or research with a faculty mentor. Some veterinary schools require specific courses such as comparative anatomy or physiology, so begin investigating programs early and plan a degree program accordingly.

Suggested Advanced Biology Courses for Pre-Veterinary Medicine Students

| Course # | Course Name | Credits |
|-----------|-------------------------------|---------|
| BIOL 335 | Human & Animal Physiology | 3 |
| BIOL 335L | Human & Animal Phys Lab | 1 |
| BIOL 336 | Ecol & Evol Animal Physiology | 3 |
| BIOL 351 | Comparative Chordate Anatomy | 5 |
| BIOL 352 | Vertebrate Histology | 4 |
| BIOL 353 | Introductory Parasitology | 3 |
| BIOL 354 | Animal Behavior | 3 |
| BIOL 354L | Animal Behavior Lab | 1 |
| BIOL 364 | Invertebrate Biology | 3-4 |
| BIOL 365 | Vertebrate Biology | 4 |
| BIOL 402 | Introduction to Pathology | 3 |
| BIOL 423 | Developmental Biology | 3 |
| BIOL 423L | Developmental Biology Lab | 1 |
| BIOL 428 | Topics in Cell Biology | 3 |
| BIOL 434 | Endocrinology | 3 |
| BIOL 436 | Neurobiology | 3 |

| Course # | Course Name | Credits |
|-----------|-----------------------------|---------|
| BIOL 457 | Herpetology | 2 |
| BIOL 457L | Herpetology Lab | 1 |
| BIOL 458 | Ornithology | 2 |
| BIOL 458L | Ornithology Lab | 1 |
| BIOL 459 | Mammalogy | 2 |
| BIOL 459L | Mammalogy Lab | 1 |
| BIOL 490 | Independent Study | 1 |
| BIOL 491 | Undergraduate Teaching Exp. | 1-2 |
| BIOL 494 | Biology Internship | 1-3 |
| BIOL 499 | Undergraduate Research Exp. | 1-3 |
| EEOB 507 | Advanced Animal Behavior | 3 |

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| Course # | Course Name | Credits | Course # | Course Name | Credits |
|-----------|---------------------------------|---------|------------|-------------------------------|---------|
| A ECL 454 | Principles of Wildlife Disease | 3 | B M S 329 | Anat & Phys of Domestic Anim. | 3 |
| AN S 319 | Animal Nutrition | 3 | B M S 401 | Intro Aquatic Animal Medicine | 1 |
| AN S 331 | Domestic Animal Reprod. | 3 | ENT 374 | Insects & Our Health | 3 |
| AN S 332 | Lab Methods in Animal Reprod. | 1 | ENT 374L | Insects & Our Health Lab | 1 |
| AN S 333 | Embryo Transfer & Related Tech. | 3 | MICRO 302 | Biology of Microorganisms | 3 |
| AN S 334 | Embryo Transfer Lab | 1 | MICRO 302L | Biology of Microorganisms Lab | 1 |
| AN S 337 | Lactation | 3 | MICRO 310 | Medical Microbiology | 3 |
| AN S 345 | Growth/Dev't Domestic Anim. | 3 | MICRO 310 | Medical Microbiology Lab | 1 |
| AN S 352 | Genetic Imp'vt Domestic Anim. | 3 | MICRO 408 | Virology | 3 |
| AN S 419 | Advanced Animal Nutrition | 2 | MICRO 475 | Immunology | 3 |
| ANTHR 307 | Biological Anthropology | 3 | PSYCH 310 | Brain and Behavior | 3 |
| ANTHR 319 | Skeletal Biology | 3 | PSYCH 315 | Drugs and Behavior | 3 |
| ANTHR 350 | Primate Behavior | 3 | | | |
| BBMB 405 | Biochemistry II | 3 | | | |
| BBMB 411 | Techniques in Biochem Rsch. | 4 | | | |
| BBMB 420 | Mammalian Biochemistry | 3 | | | |

Suggested Supporting Science Courses

Pre-veterinary students should plan to take a full year of general chemistry (CHEM 177 + CHEM 177L, and CHEM 178 + CHEM 178L), a full year of organic chemistry (CHEM 331 + CHEM 331L, and CHEM 332 + CHEM 332L), and strongly consider taking more advanced biochemistry courses (i.e., BBMB 420, or BBMB 404 and BBMB 405). Pre-veterinary students should also consider taking a full year of physics (PHYS 111 and PHYS 112). Completing Biology Program requirements for math/statistics should meet most vet school entry requirements, but bear in mind that a few schools specifically require calculus.

Resources for Pre-Veterinary Medicine Students

Association of American Veterinary Medical Colleges (AAVMC): <http://www.aavmc.org>

List of schools with veterinary medicine programs: <https://www.aavmc.org/aavmc-members/full-member-listing>

Information about standardized tests (these may be required in applying to veterinary schools):

MCAT: <https://students-residents.aavmc.org/applying-medical-school/taking-mcat-exam/prepare-mcat-exam/>

GRE: <http://www.ets.org/gre/>

Iowa State University College of Veterinary Medicine: <http://vetmed.iastate.edu>