



Learning Outcomes for the Biology Pre-Vet Concentration

Lower Division Courses

Lower division elective learning outcomes

- Learn foundational core scientific concepts in biology, chemistry, and physics to become biologically literate. These core concepts are evolution, structure & function, information flow, exchange and storage, pathways and transformations of energy and matter, and systems (recommended by the American Association for the Advancement of Sciences).
- Learn mathematical concepts utilized in the biological sciences.
- Learn the process of science through problem solving and data interpretation. This involves the ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.
- Develop communication skills – *this is extremely important for veterinary applicants*.
- Understand the interdisciplinary nature of science.
- Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
- Function effectively on teams to solve problems.

Required lower division courses (see Biology major checklist or UG Bulletin for courses)

Biology (20 hrs)

Chemistry (16 hrs)

Physics (8 hrs)

Mathematics (7 hrs)

Additional required lower/upper division course

English Composition (2 courses): WRTG 1310, 1320, 2310, 2315, 3301, or 3310

Speech Communications: SPCH 1310 (Public Speaking) or SPCH 3307 (Interpersonal Communication)

Upper Division Courses

Upper division elective learning outcomes

- Learn foundational course content needed to apply to veterinary medicine programs.
- Exposure to diverse coursework to broaden students' thought processes so they can approach and deal with different topics and problems.
- An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science to areas relevant to the discipline.
- Develop independent inquiry and problem-solving skills.
- Develop communication skills – *this is extremely important for veterinary applicants*.
- Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.

Required upper division courses

The pre-requisite course is indicated in parentheses along with the upper division core designation, if applicable.

_____ BIOL 3420 General Microbiology (BIOL 2490)

_____ CHEM 4320 Biochemistry I (CHEM 3411)



Recommended upper division courses

All upper division biology electives have Genetics (BIOL 2490) as a pre-requisite. The pre-requisite course is indicated in parentheses along with the upper division core designation, if applicable. These courses are just suggestions; you can still select from **ALL** the upper division biology elective course offerings listed in the UG Bulletin. Courses in **BOLD** are highly suggested (but, not required). *It is important to have some diversity in the course offerings you select.*

- _____ BIOL 3310 Neuroethology: The Neural Basis of Natural Behaviors
- _____ **BIOL 4340 Immunology (BIOL 3402)**
- _____ **BIOL 4405 Developmental Biology (BIOL 3402)**
- _____ BIOL 4414 Molecular Mechanisms of Aging (BIOL 3402) [UD UCA Core: Z]
- _____ BIOL 4421 Pathogenic Microbiology (BIOL 3402) [UD UCA Core: Z]
- _____ **BIOL 4425 Experimental Neurobiology (CHEM 1450/PHYS 1420) [UD Core: Z]**
- _____ BIOL 4475 Advanced Cell Biology (BIOL 3402) [UD UCA Core: Z]
- _____ BIOL 4311 Pathophysiology (BIOL 2405 or 3407 or 4460)
- _____ BIOL 4320 Neurodevelopment and Pathology
- _____ **BIOL 4360 Endocrinology (BIOL 3402)**
- _____ BIOL 4376 Virology (BIOL 3402)
- _____ **BIOL 4430 Comparative Vertebrate Anatomy**
- _____ **BIOL 4460 Animal Physiology (BIOL 3402)**
- _____ **BIOL 4400 Histology (BIOL 3402)**
- _____ **BIOL 4401 Invertebrate Zoology**
- _____ **BIOL 3410 Vertebrate Zoology**
- _____ **BIOL 4406 Mammalogy (BIOL 3402, recommended BIOL 3410 or 4415)**
- _____ BIOL 4418 Biology of the Reptilia (BIOL 3403)
- _____ **BIOL 4461 Parasitology**
- _____ **BIOL 4415 Evolution**
- _____ **BIOL 4435 Animal Behavior (CHEM 1451, MATH 2311) [UD UCA Core: Z]**
- _____ CHEM 4320/4121 Biochemistry I & Lab (CHEM 3411)
- _____ BIOL 4445 Biometry (MATH 2311)
- _____ BIOL 3V50/4V55 Independent Study
- _____ BIOL 3V45 Internship
- _____ BIOL 4V85 Undergraduate Research [UD UCA Core: Z]
- _____ BIOL 4V90 Special Topics in Biology: TBD

Non-academic Competencies

- Compassion & empathy
- Time management
- Responsibility
- Socio, economic, and cultural competence
- Maturity
- Integrity
- Motivation for animal care

Some of these trait competencies are folded into biology courses. However, you will need to find opportunities to discover (and develop) how these traits incorporate you as a unique individual. Courses in other disciplines, such as communications, sociology, and business may be helpful.



Animal Care Experience

Most veterinary programs recommend animal care/handling experience. This will demonstrate your motivation, interest and familiarity with the profession. This experience will come through in your personal essay, letters of recommendation, and personal interview. Obtaining this experience is **EXTREMELY IMPORTANT**.