VETERINARY AND BIOMEDICAL SCIENCES, B.S.

Begin Campus: Any Penn State Campus
End Campus: University Park

Degree Requirements

For the Bachelor of Science degree in Veterinary and Biomedical Sciences, a minimum of 123 credits is required:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Electives</td>
<td>6-10</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>86-90</td>
</tr>
</tbody>
</table>

18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 112</td>
<td>Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 113</td>
<td>Experimental Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>MICRB 202</td>
<td>Introductory Microbiology Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 250</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 251</td>
<td>Introductory Physics II</td>
<td>4</td>
</tr>
<tr>
<td>VBSC 211</td>
<td>The Immune System and Disease</td>
<td>3</td>
</tr>
<tr>
<td>VBSC/BIOL 421</td>
<td>Comparative Anatomy of Vertebrates</td>
<td>4</td>
</tr>
</tbody>
</table>

Prescribed Courses: Require a grade of C or better

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 201</td>
<td>Animal Science</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 301</td>
<td>Principles of Animal Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
</tbody>
</table>

Additional Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 423</td>
<td>Comparative Physiology of Domestic Animals</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 472</td>
<td>Human Physiology</td>
<td></td>
</tr>
<tr>
<td>MICRB 201</td>
<td>Introductory Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>or MICRB 201H</td>
<td>Introductory Microbiology</td>
<td></td>
</tr>
<tr>
<td>STAT 200</td>
<td>Elementary Statistics</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 250</td>
<td>Introduction to Biostatistics</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits from the following: 3

AGBM 101| Economic Principles of Agribusiness Decision Making | 3       |
BA 100 | Introduction to Business                              |         |
ECON 14 | Principles of Economics                               |         |
ECON 102| Introductory Microeconomic Analysis and Policy        |         |
ECON 104| Introductory Macroeconomic Analysis and Policy        |         |

Select 3-4 credits from the following: 3-4

BIOL 220W| Biology: Populations and Communities                    |         |
BIOL 230W| Biology: Molecules and Cells                             |         |
BIOL 240W| Biology: Function and Development of Organisms          |         |
BMB 251 | Molecular and Cell Biology I                            |         |

Select 6-8 credits from the following: 6-8

CHEM 202| Fundamentals of Organic Chemistry I                      |         |
& CHEM 203| and Fundamentals of Organic Chemistry II                |         |
CHEM 210| Organic Chemistry I                                     |         |
& CHEM 212| and Organic Chemistry II                                |         |
& CHEM 213| and Laboratory in Organic Chemistry                    |         |

Select 6 credits from the following: 6

BMB 211 | Elementary Biochemistry                                 |         |
& BMB 212| and Elementary Biochemistry Laboratory                 |         |
& BMB 221| and Applied Biochemistry                                |         |
BMB 401 | General Biochemistry                                    |         |
& BMB 402| and General Biochemistry                                |         |

Additional Courses: Require a grade of C or better

BIOL 110| Biology: Basic Concepts and Biodiversity                 | 4       |
or BIOL 110H| Honors Biology: Basic Concepts and Biodiversity         |         |

BIOL 222| Genetics                                                | 3       |
or BIOL 322| Genetic Analysis                                        |         |

MATH 140| Calculus With Analytic Geometry I                       | 4       |
or MATH 140B| Calculus and Biology I                                  |         |

MATH 141| Calculus with Analytic Geometry II                      | 4       |
or MATH 141B| Calculus and Biology II                                 |         |

VBSC 403| Principles of Animal Disease Control                    | 3       |
or VBSC 403H| Principles of Animal Disease Control                    |         |

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 9 credits of 400-level courses from department list | 9

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits
Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student’s degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.