

# Biology BS Curriculum Checklist

Fall 2024 – Spring 2025 (updated 04/11/2024)

## Completed

## Required Courses

- BIOL2000 Molecules & Cells (fall/spring)
- BIOL2010 Ecology & Evolution (fall/spring)
- BIOL2040 Investigations in Molecular Cell Biology Lab (fall/spring) **NOTE:** Taken after BIOL2000
- Category A: Genetics & Genomics**  
One from the following:
  - BIOL3050 Genetics (fall only) – 4 cr
  - BIOL3060 Introduction to Genetics (summer only)
  - BIOL3150 Introduction to Genomics (spring only)
- Category B: Physiology & Organismal Biology**  
One from the following:
  - BIOL3030 Comparative Vertebrate Physiology (fall only)
  - BIOL3320 Developmental Biology (spring only)
  - BIOL4110 Ornithology (not offered in AY24-25)
  - BIOL4330 Human Physiology with Lab (spring only) – 4 cr
  - BIOL4450 Behavioral Ecology (spring only)
  - BIOL4540 Neuroscience (fall only)
- One Advanced Experience Course (see the listing on reverse side)**  
**NOTE:** Undergraduate Research can be used to satisfy the Advanced Experience requirement and to contribute three credits toward the major if the student completes two semesters in the same laboratory.
- Choose Biology courses 3000 level or above to bring the total Biology credits to 30**

See the reverse page for a listing of biology electives. For those who wish to focus their studies in a specific area, courses are categorized by concentration (see superscript). Concentrations, while providing more in-depth coverage around a single topic, are not officially recognized on a transcript and are not required for the Biology Major. More information on how selected electives form the basis of a concentration is available on the Biology Department website.

## CO-REQUISITES

### Chemistry

- \_\_\_ General Chemistry 1 & 2 with Labs (CHEM1109-1110; 1111-1112)
- \_\_\_ Organic Chemistry 1 with Lab (CHEM2231-2233)
- \_\_\_ Organic Chemistry 2 with Lab (CHEM2232-2234) OR Biological Chemistry (BIOL4350)\*

### Mathematics

- \_\_\_ Calculus 1 (MATH1100) or equivalent

### Additional Quantitative courses

- \_\_\_ Choose three from the following list
- Calculus 2 (MATH1101)
- MATH courses 2000 level or higher
- Statistics (BIOL2300, ECON1151, MATH4427, PHCG3560)\*\*
- Intro Physics 1 (calculus-based) with Lab (PHYS2100)
- Intro Physics 2 (calculus-based) with Lab (PHYS2101)
- Research Methods in Organismal Biology (BIOL3140)\*
- Population Genetics (BIOL 4250)\*
- Computer Science 1 and/or 2 (CSCI1101, CSCI1102)
- Database Systems and Applications (CSCI2257)
- Data Science (CSCI2291)

\*BIOL3140, BIOL4250, and BIOL4350 can apply as EITHER an elective OR a co-requisite, not both

## 2024-2025 BIOLOGY ELECTIVES

Biology Electives are 3 credits each unless otherwise noted.

2024-2025 BIOLOGY ELECTIVES	
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<p style="text-align: center; color: #2e8b57;"><b>Fall 2024</b></p> <ul style="list-style-type: none"> <li><sup>3</sup> Comparative Vertebrate Physiology (BIOL3030)</li> <li><sup>2</sup> Cell Biology (BIOL3040)</li> <li><sup>4</sup> Genetics (BIOL3050) – <b>4 cr</b></li> <li><sup>3</sup> Research Methods in Organismal Biology (BIOL3140)*</li> <li><sup>1</sup> Virology (BIOL4090)</li> <li><sup>2,3</sup> Inflammation and Disease (BIOL4120)</li> <li><sup>1</sup> Microbiology (BIOL4140)</li> <li><sup>4</sup> Introduction to Bioinformatics (BIOL4200)</li> <li><sup>3</sup> Human Anatomy with Lab (BIOL4260) – <b>4 cr</b></li> <li><sup>2,3</sup> Metabolic Regulation and Human Disease (BIOL4290)</li> <li><sup>1</sup> Vaccination and Immunity (BIOL4440)</li> <li><sup>2,3</sup> Neuroscience (BIOL4540)</li> </ul>	<p style="text-align: center; color: #2e8b57;"><b>Spring 2025</b></p> <ul style="list-style-type: none"> <li><sup>2</sup> Cell Biology (BIOL3040)</li> <li><sup>1</sup> Foundations of Microbiology (BIOL3090)</li> <li><sup>4</sup> Introduction to Genomics (BIOL3150)</li> <li><sup>3</sup> Ecology in a Changing Climate (BIOL3200)</li> <li><sup>2</sup> Developmental Biology (BIOL3320)</li> <li><sup>3</sup> Deep Sea Biology (BIOL4030)</li> <li><sup>4</sup> Population Genetics (BIOL4250)*</li> <li><sup>3</sup> Human Physiology with Lab (BIOL4330) – <b>4 cr</b></li> <li><sup>1,2,3</sup> Biological Chemistry (BIOL4350)</li> <li><sup>2,4</sup> Molecular Biology (BIOL4400)</li> <li><sup>3</sup> Behavioral Ecology (BIOL4450)</li> <li><sup>2</sup> Cancer Biology (BIOL4510)</li> <li><sup>1,4</sup> Principles of Immunology (BIOL4570)</li> </ul>
BIOLOGY ELECTIVES OFFERED IN OTHER DEPARTMENTS	
<p style="text-align: center; color: #2e8b57;"><b>Fall 2024</b></p> <ul style="list-style-type: none"> <li>Biochemistry I (CHEM4461)</li> </ul>	<p style="text-align: center; color: #2e8b57;"><b>Spring 2025</b></p> <ul style="list-style-type: none"> <li>Biochemistry II (CHEM4462)</li> <li>Drug Discovery and Medicinal Chemistry (CHEM5510)</li> <li>Synthetic Biology (CHEM5513)</li> </ul>
ADVANCED EXPERIENCE COURSES	
<p style="text-align: center; color: #2e8b57;"><b>Fall 2024</b></p> <p><b>Seminars (3 credits)</b></p> <ul style="list-style-type: none"> <li><sup>2</sup> Nobel Winning Res in Medicine or Physio (BIOL5010) – <b>2 cr</b></li> <li><sup>2,3,4</sup> Topics in Developmental Biology (BIOL5040) (<b>2 cr</b>)</li> <li><sup>1</sup> Microbiome and Human Disease (BIOL5100) – <b>2 cr</b></li> <li><sup>2</sup> Environmental Disruptors of Development (BIOL5130)</li> <li><sup>2</sup> Glycobiology and Human Disease (BIOL5200) – <b>2 cr</b></li> <li><sup>2,3</sup> Cancer as a Metabolic Disease (BIOL5420)</li> <li><sup>4</sup> Biology of the Nucleus (BIOL5700)</li> </ul> <p><b>Advanced Labs (3 credits)</b></p> <ul style="list-style-type: none"> <li><sup>4</sup> Research in Phylogenetics (BIOL4075)</li> <li><sup>1,4</sup> Research in Molecular Biology Lab (BIOL4830)</li> <li><sup>2</sup> Investigations in Cellular Re-Programming (BIOL4890)</li> <li><sup>2</sup> Advanced Lab in Cell Imaging (BIOL5450) – <b>2 cr</b></li> </ul>	<p style="text-align: center; color: #2e8b57;"><b>Spring 2025</b></p> <p><b>Seminars (3 credits)</b></p> <ul style="list-style-type: none"> <li><sup>2</sup> Nobel Winning Res in Medicine or Physio (BIOL5010) – <b>2cr</b></li> <li><sup>1</sup> Microbial Community Ecology (BIOL5071) – <b>2 cr</b></li> <li><sup>2</sup> Environmental Disruptors of Development (BIOL5130)</li> <li><sup>2</sup> Seminar in Cellular Dynamics (BIOL5180) – <b>2 cr</b></li> <li><sup>2</sup> Movement in Biology (BIOL5220) – <b>2 cr</b></li> <li><sup>1</sup> Immunity and Infectious Disease (BIOL5230)</li> <li><sup>2,3</sup> Topics in Nutrition and Metabolism (BIO5250)</li> <li><sup>3</sup> Vertebrate Biomechanics (BIOL5380)</li> <li><sup>2,3</sup> Cancer as a Metabolic Disease (BIOL5420)</li> <li><sup>4</sup> Genomics and Personalized Medicine (BIOL5430)</li> </ul> <p><b>Advanced Labs (3 credits)</b></p> <ul style="list-style-type: none"> <li><sup>1,4</sup> Research in Molecular Biology Lab (BIOL4830)</li> <li><sup>2</sup> Advanced Lab in Cell Imaging (BIOL5450) – <b>2 cr</b></li> </ul>

Undergraduate Research for credit (BIOL4960 or BIOL4963) can be used to satisfy the Advanced Experience requirement or one biology elective only if the student completes **two semesters of research in the same laboratory**, with permission from the Biology Department. Undergraduate research for credit can take place on or off campus, and requires the permission of the supervising faculty member.

### NOTES

<sup>1</sup> Microbiology concentration course

<sup>2</sup> Cell Biology and Development concentration course

<sup>3</sup> Physiology and Organismal Biology concentration course

<sup>4</sup> Genetics and Genomics concentration course

\*\*Statistics is applied to the quantitative requirement and to the Genes and Genomes concentration but is not applied to the Biology elective credits.

Please visit the [website](#) to see a full list of CORE courses offered Fall 2024.