BIOLOGICAL SCIENCES MAJOR

Students must also complete the Undergraduate Registration Requirement (https://catalogs.northwestern.edu/undergraduate/requirements-policies/undergraduate-registration-requirement/) and the degree requirements of their home school.

NOTE: This Catalog describes Weinberg College BA requirements that pertain to students who matriculated at Northwestern after spring quarter 2023. Refer to the Archives (https://catalogs.northwestern.edu/archives/) if you are following BA requirements described in the 2018-2019 through 2022-2023 editions.

Concentration Courses

Molecular Genetics and Genomics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any three of the following courses:</td>
<td></td>
</tr>
<tr>
<td>BIOL_SCI 332-0</td>
<td>Conservation Genetics</td>
</tr>
<tr>
<td>BIOL_SCI 341-0</td>
<td>Population Genetics</td>
</tr>
<tr>
<td>BIOL_SCI 353-0</td>
<td>Molecular Biology Laboratory</td>
</tr>
<tr>
<td>BIOL_SCI 354-0</td>
<td>Quantitative Analysis of Biology</td>
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<tr>
<td>BIOL_SCI 359-0</td>
<td>Quantitative Experimentation in Biology</td>
</tr>
<tr>
<td>BIOL_SCI 378-0</td>
<td>Functional Genomics</td>
</tr>
<tr>
<td>BIOL_SCI 390-0</td>
<td>Molecular Biology of Genome Editing and Engineering</td>
</tr>
<tr>
<td>BIOL_SCI 391-0</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL_SCI 392-0</td>
<td>Developmental Genetics Laboratory</td>
</tr>
<tr>
<td>BIOL_SCI 393-0</td>
<td>Human Genomics</td>
</tr>
<tr>
<td>BIOL_SCI 395-0</td>
<td>Molecular Genetics</td>
</tr>
<tr>
<td>BIOL_SCI 396-0</td>
<td>Evolution and Diversity: Mushroom Genetics and Genomics</td>
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Cell and Developmental Biology

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<thead>
<tr>
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<tbody>
<tr>
<td>Any three of the following courses:</td>
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<tr>
<td>BIOL_SCI 310-0</td>
<td>Human Physiology</td>
</tr>
<tr>
<td>BIOL_SCI 315-0</td>
<td>Advanced Cell Biology</td>
</tr>
<tr>
<td>BIOL_SCI 319-0</td>
<td>Biology of Animal Viruses</td>
</tr>
<tr>
<td>BIOL_SCI 327-0</td>
<td>Biology of Aging</td>
</tr>
<tr>
<td>BIOL_SCI 328-0</td>
<td>Microbiology</td>
</tr>
<tr>
<td>BIOL_SCI 353-0</td>
<td>Molecular Biology Laboratory</td>
</tr>
<tr>
<td>BIOL_SCI 355-0</td>
<td>Immunobiology</td>
</tr>
<tr>
<td>BIOL_SCI 360-0</td>
<td>Principles of Cell Signaling</td>
</tr>
<tr>
<td>BIOL_SCI 377-0</td>
<td>The Human Microbiome</td>
</tr>
<tr>
<td>BIOL_SCI 380-0</td>
<td>Biology of Cancer</td>
</tr>
<tr>
<td>BIOL_SCI 381-0</td>
<td>Stem Cells and Regeneration</td>
</tr>
<tr>
<td>BIOL_SCI 390-0</td>
<td>Molecular Biology of Genome Editing and Engineering</td>
</tr>
<tr>
<td>BIOL_SCI 391-0</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL_SCI 392-0</td>
<td>Developmental Genetics Laboratory</td>
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</table>

Human Health and Disease

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Any three of the following courses:</td>
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<tr>
<td>BIOL_SCI 302-0</td>
<td>Fundamentals of Neurobiology</td>
</tr>
<tr>
<td>BIOL_SCI 310-0</td>
<td>Human Physiology</td>
</tr>
<tr>
<td>BIOL_SCI 319-0</td>
<td>Biology of Animal Viruses</td>
</tr>
</tbody>
</table>
**Biological Sciences Major**

**Biological Sciences Major

BIOL_SCI 325-0
Animal Physiology

BIOL_SCI 327-0
Biology of Aging

BIOL_SCI 328-0
Microbiology

BIOL_SCI 344-0
Anatomy of Vertebrates

BIOL_SCI 353-0
Molecular Biology Laboratory

BIOL_SCI 355-0
Immunobiology

BIOL_SCI 358-0
Advanced Physiology Laboratory

BIOL_SCI 360-0
Principles of Cell Signaling

BIOL_SCI 377-0
The Human Microbiome

BIOL_SCI 380-0
Biology of Cancer

BIOL_SCI 381-0
Stem Cells and Regeneration

BIOL_SCI 391-0
Developmental Biology

BIOL_SCI 392-0
Developmental Genetics Laboratory

**Ecology, Evolution, and Conservation Biology**

Course | Title
---|---
Any three of the following courses:

BIOL_SCI 332-0 | Conservation Genetics

BIOL_SCI 333-0 | Plant-Animal Interactions

BIOL_SCI 334-0 | Soils and the Environment: The Earth’s Critical Zone

BIOL_SCI 336-0 | Spring Flora

BIOL_SCI 337-0 | Biostatistics

BIOL_SCI 339-0 | Critical Topics in Ecology and Conservation

BIOL_SCI 341-0 | Population Genetics

BIOL_SCI 342-0 | Evolutionary Processes

BIOL_SCI 344-0 | Anatomy of Vertebrates

BIOL_SCI 346-0 | Field Ecology

BIOL_SCI 347-0 | Conservation Biology

BIOL_SCI 349-0 | Community Ecology

BIOL_SCI 350-0 | Plant Evolution and Diversity Lab

**Biochemistry and Biophysics**

Course | Title
---|---
Any three of the following courses:

BIOL_SCI 323-0 | Bioinformatics: Sequence and Structure Analysis

BIOL_SCI 338-0 | Modeling Biological Dynamics

BIOL_SCI 353-0 | Molecular Biology Laboratory

BIOL_SCI 360-0 | Principles of Cell Signaling

BIOL_SCI 361-0 | Protein Structure and Function

BIOL_SCI 363-0 | Biophysics

**Computational and Systems Biology**

Course | Title
---|---
Coding requirement for this concentration may be satisfied by COMP_SCI 110-0, COMP_SCI 111-0, or NICO 101-0 plus NICO 102-0. One unit of programming coursework may substitute for one of the two required 300-level Biol Sci electives.

Any three of the following courses:

BIOL_SCI 323-0 | Bioinformatics: Sequence and Structure Analysis

BIOL_SCI 337-0 | Biostatistics

BIOL_SCI 338-0 | Modeling Biological Dynamics

BIOL_SCI 354-0 | Quantitative Analysis of Biology

BIOL_SCI 359-0 | Quantitative Experimentation in Biology

BIOL_SCI 378-0 | Functional Genomics

CHEM_ENG 379-0 | Computational Biology: Analysis and Design of Living Systems

Selected sections of BIOL_SCI 345-0 and ES_APPM 495-0 are also eligible to be applied to this concentration. 5

**Molecular Neurobiology**

Course | Title
---|---
Any three of the following courses:

BIOL_SCI 302-0 | Fundamentals of Neurobiology

BIOL_SCI 303-0 | Molecular Neurobiology

BIOL_SCI 305-0 | Neurobiology Laboratory

BIOL_SCI 307-0 | Brain Structure, Function, and Evolution

BIOL_SCI 325-0 | Animal Physiology

BIOL_SCI 360-0 | Principles of Cell Signaling

BIOL_SCI 391-0 | Developmental Biology

BIOL_SCI 392-0 | Developmental Genetics Laboratory

**Interdisciplinary Biology**

Customized concentration consisting of a thematic set of three, 300-level Biol Sci courses approved by the biology program. Interdisciplinary themes should be unique and distinct from already established concentrations.

**Honors in Biological Sciences**

Seniors may be recommended to the college for graduation with honors if they have completed BIOL_SCI 397-0 Senior Thesis Colloquium and at least one quarter of BIOL_SCI 398-0 Tutorial in Biology or BIOL_SCI 399-0 Independent Research, have written an approved honors thesis based on their independent study, and have sufficiently high grades.

Majors with strong academic records and an interest in pursuing honors must complete BIOL_SCI 397-0 Senior Thesis Colloquium in Winter Quarter of Senior Year.

For more information consult the biological sciences website and see the Honors in the Major (https://catalogs.northwestern.edu/undergraduate/arts-sciences/#academicoptiontext).