

BIOLOGICAL SCIENCES | BACHELOR OF SCIENCE: BIOLOGY (NATURAL RESOURCES)

Program Summary

| Code | Title | Hours |
|--------------------|-------|------------|
| General Education | | 34 |
| Major Core | | 33-34 |
| Cognates | | 12-14 |
| Directed Electives | | 13-23 |
| Open Electives | | 15-28 |
| Total Hours | | 120 |

¹ Open electives are the credit hours required to reach a minimum of 120 total hours and 45 upper-level hours. The number listed assumes all courses are completed at FHSU as listed. This number may vary if students transfer courses, or have individual substitutions allowed.

Students should speak with their advisor if either situation applies to determine if the number will vary, and to ensure they enroll in a minimum of 45 upper-level hours.

Students entering within 1 year of high school graduation will take UNIV 101 Freshman Seminar and may apply that hour in the open elective category.

Program Requirements

General Education

All undergraduate degrees require completion of the Kansas Systemwide General Education (<https://catalog.fhsu.edu/general-education/>).

Courses identified with ^{GE} on this page may satisfy a general education requirement in addition to the identified degree requirement. Students who apply a degree requirement to satisfy a general education requirement will typically add an equal number of hours to the the university elective category. This flexibility may allow you to complete a minor or certificate within the 120 hour degree. Transfer students and students majoring in programs with approved exceptions (<https://www.fhsu.edu/general-education/documents/fhsu-gen-ed-transfer-exceptions-explainer1.pdf>) are especially encouraged to select these courses in completing General Education requirements to maximize the likelihood of completing the degree with 120 credit hours.

| Code | Title | Hours |
|--------------------------|---|--------------|
| General Education | | 34-35 |
| Code | | Title |
| Hours | | |
| 1. Biology Core | | |
| BIOL 180 & 180L | Principles of Biology and Principles of Biology Laboratory ^{GE, 1, 2, 3} | 4 |
| BIOL 250 & 250L | Botany and Botany Laboratory ^{GE, 2, 3} | 4 |
| BIOL 260 & 260L | Zoology and Zoology Laboratory ^{GE, 2, 3} | 4 |

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|---------------------------------------|--------------------------------|-----|
| BIOL 395 & 395L | Ecology and Ecology Laboratory | 4 |
| Select one course from the following: | | 3-4 |

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| BIOL 325 & 325L | Genetics and Genetics Laboratory ^{2, 3} | |
| BIOL 420 | Evolution ² | |

2. Structure and Function Requirement

Select two of the following, at least one of which must be a Physiology course: 8

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| BIOL 330 & 330L | Plant Anatomy and Plant Anatomy Laboratory ³ | |
| BIOL 345 & 345L | Human Anatomy and Human Anatomy Laboratory ³ | |
| BIOL 346 & 346L | Human Physiology and Human Physiology Laboratory ² | |
| BIOL 450 & 450L | Comparative Anatomy and Comparative Anatomy Laboratory ⁵ | |
| BIOL 495 & 495L | Plant Physiology and Plant Physiology Laboratory ² | |

3. Upper-Division Requirements

Select 13-23 credits of the following: ⁶ 13-23

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| BIOL 470 & BIOL 471 | Problems in Biology and Problems in Biology (Research) ^{2, 3} | |
| BIOL 476 | Internship in Biology ^{2, 3} | |
| BIOL 482 | Readings in Biology ^{2, 3} | |
| BIOL 490 & 490L | General Microbiology and General Microbiology Laboratory ^{GE, 2, 3} | |

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|-----------------|---|--|
| BIOL 610 & 610L | Taxonomy of Flowering Plants and Taxonomy of Flowering Plants Laboratory ² | |
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| BIOL 619 & 619L | Aquatic Ecology and Aquatic Ecology Laboratory ⁵ | |
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| BIOL 621 | Human Dimensions in Wildlife ⁷ | |
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| BIOL 627 | Behavioral Ecology ⁸ | |
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| BIOL 634 | Rangeland Restoration and Conservation ⁷ | |
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| BIOL 637 | Contemporary Rangeland Issues ⁸ | |
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| BIOL 638 & 638L | Range Plants and Rangeland Plant Identification Lab ⁵ | |
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| BIOL 642 & 642L | Parasitology and Parasitology Laboratory ⁷ | |
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4. Discipline Writing Course Graduation Requirement

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| BIOL 442 | Scientific Communication ² | 3 |
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5. Management

Select one course from the following: 4

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| BIOL 695 & 695L | Rangeland Management and Rangeland Management Techniques ⁹ | |
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| BIOL 697 & 697L | Wildlife Management and Wildlife Management Techniques ⁸ | |
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| BIOL 699 | Fisheries Management ⁸ | |
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6. Chemistry Cognates

Select one of the following options: 8-10

Option A:

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|-----------------|---|--|
| CHEM 120 & 120L | University Chemistry I and University Chemistry Laboratory I ^{GE, 2} | |
|-----------------|---|--|

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|--|---|--------------|
| CHEM 122 & 122L | University Chemistry II and University Chemistry Laboratory II ^{GE, 3} | |
| Option B: | | |
| CHEM 112 & 112L | General Chemistry I and General Chemistry Laboratory I ² | |
| CHEM 114 & 114L | General Chemistry II and General Chemistry Laboratory II ³ | |
| 7. Mathematics and Statistics Cognate | | |
| BIOL 620 & 620L | Biostatistics and Biostatistics Lab ² | 4 |
| Total Hours | | 59-72 |

- ¹ Counts towards General Education and the Biology major.
- ² Fall offering.
- ³ Spring offering.
- ⁴ BIOL 230 Anatomy and Physiology I/BIOL 230L Anatomy and Physiology I Laboratory and BIOL 231 Anatomy and Physiology II/BIOL 231L Anatomy and Physiology II Laboratory must be taken in combination.
- ⁵ Fall (odd) offering.
- ⁶ Take any of courses with "BIOL" prefix and 300 level or above from either the list below or courses listed above that were not used to meet the requirements for that section. Courses other than those listed may be available. Talk to your faculty mentor and academic advisor. The number of credit hours completed in this section, depends on the number of credit hours completed in sections 1, 3, 6, 7, and 9.
- ⁷ Spring (odd) offering.
- ⁸ Spring (even) offering.
- ⁹ Fall (even) offering.
- ¹⁰ Other minors are possible; talk to your faculty mentor and academic advisor.

Degree Requirements

| Code | Title | Hours |
|--|-------|-------|
| All bachelor degrees require: | | |
| GPA of 2.0 on FHSU courses & 2.0 on all coursework (Higher program requirements prevail over the 2.0 when set) | | |
| A minimum of 30 hours earned from FHSU with a grade of D, C, B, or A | | |
| Successful completion of an upper division Writing and Information Literacy course (Most majors contain a course designated) | | |
| A minimum of 45 hours of recognized upper division credit | | |
| A minimum of 120 hours of recognized college credit | | |

Degree Maps

| Course | Title | Hours |
|-------------------|--|-----------|
| First Year | | |
| Fall | | |
| MATH 110 | College Algebra | 3 |
| ENG 101 | English Composition I | 3 |
| CHEM 112 & 112L | General Chemistry I and General Chemistry Laboratory I | 4 |
| UNIV 101 | Freshman Seminar | 1 |
| BIOL 180 & 180L | Principles of Biology and Principles of Biology Laboratory | 4 |
| Hours | | 15 |

| Spring | | |
|---|--|-----------|
| SGE070 - Institutionally Designated Area: Personal and Professional Development | | 3 |
| ENG 102 | English Composition II | 3 |
| BIOL 250 & 250L | Botany and Botany Laboratory | 4 |
| CHEM 114 & 114L | General Chemistry II and General Chemistry Laboratory II | 4 |
| Hours | | 14 |

| Second Year | | |
|---|--|-----------|
| Fall | | |
| SGE050 - Social Behavioral Sciences Discipline Area | | 3 |
| SGE070 - Institutionally Designated Area: Critical Thinking | | 3 |
| BIOL 260 & 260L | Zoology and Zoology Laboratory | 4 |
| COMM 100 | Fundamentals of Oral Communication | 3 |
| BIOL 330 & 330L | Plant Anatomy and Plant Anatomy Laboratory | 4 |
| Hours | | 17 |

| Spring | | |
|--|--|-----------|
| Open Electives | | 3 |
| SGE060 - Arts Humanities Discipline Area | | 3 |
| BIOL 325 & 325L | Genetics and Genetics Laboratory | 4 |
| BIOL 345 & 345L | Human Anatomy and Human Anatomy Laboratory | 4 |
| Hours | | 14 |

| Third Year | | |
|--|--|-----------|
| Fall | | |
| SGE060 - Arts Humanities Discipline Area | | 3 |
| BIOL 395 & 395L | Ecology and Ecology Laboratory | 4 |
| BIOL 695 & 695L | Rangeland Management and Rangeland Management Techniques | 4 |
| Open Electives | | 4 |
| Hours | | 15 |

| Spring | | |
|---|--------------------------|-----------|
| BIOL 442 | Scientific Communication | 3 |
| Directed Electives | | 4 |
| Directed Electives | | 3 |
| Open Electives | | 3 |
| SGE050 - Social Behavioral Sciences Discipline Area | | 3 |
| Hours | | 16 |

| Fourth Year | | |
|--------------------|-------------------------------------|-----------|
| Fall | | |
| BIOL 620 & 620L | Biostatistics and Biostatistics Lab | 4 |
| Directed Electives | | 4 |
| Open Electives | | 4 |
| Open Electives | | 3 |
| Hours | | 15 |

| Spring | | |
|--------------------|--|------------|
| Open Electives | | 3 |
| Open Electives | | 3 |
| Directed Electives | | 4 |
| Directed Electives | | 4 |
| Hours | | 14 |
| Total Hours | | 120 |

Academic Degree Maps are term-by-term sample course plans that specify milestones, courses, and special requirements that are necessary for facilitating on-time completion. Degree Maps are *examples* and are not prescriptive. Individualized choices such as concentration options, transfer credits, optional minors, advisory programs (certificates), etc.

can alter the recommended coursework. Course offerings are subject to change. Students should consult with their academic advisors for additional guidance on course planning.

To determine courses to take in the directed choices (often listed as Program Elective Course) and directed elective course blocks see the overview tab for courses. To locate approved courses in General Education areas (Undergraduate Programs) see the general education section (<https://catalog.fhsu.edu/general-education/>) of the catalog.

The undergraduate course maps typically advise the most efficient route for students to complete the general education requirements. Courses that are required in the major may be listed as fulfilling relevant general education requirements. This will result in more open elective course hours in some maps than is listed on the degree overview page.