# BACHELOR OF ARTS IN BIOLOGICAL SCIENCES

The Bachelor of Arts is recommended only for those students who plan careers in business or secondary education careers related to the Biological Sciences. A minimum of 32 S.H. in Biological Sciences is required for the BA degree.

All biological sciences majors must take the courses as listed for the BA degree in the curriculum sheet.

The BA degree in biological sciences requires a minimum of 32 semester hours from within the Department of Biological Sciences. (Courses at the 1000 level are not applicable to a Bachelor of Arts degree.)

All biological sciences majors must take the following courses for the BA degree:

| COURSE | TITLE | S.H. |
|---|---|---|
| **General Education Requirements** | | |
| Core Competencies | | |
| ENGL 1550 | Writing 1 | 3-4 |
| or ENGL 1549 | Writing 1 with Support | |
| ENGL 1551 | Writing 2 | 3 |
| CMST 1545 | Communication Foundations | 3 |
| Mathematics Requirement (met through MATH in major) | | |
| Knowledge Domains | | |
| Arts and Humanities (6 s.h.) | | 6 |
| Natural Sciences (2 courses, 1 with lab) (6-7 s.h.) | | |
| Met through science courses in the major | | |
| Social Science (6 s.h.) | | 6 |
| Social and Personal Awareness (6 s.h.) | | 6 |
| STEM 1520 | STEM First Year Orientation | 2 |
| **Foreign Language Requirement** | | 8 |
| FNLG 1550: Elementary Foreign Language | | |
| FNLG 2600: Intermediate Foreign Language | | |
| **Major Requirements** | | |
| BIOL 2601 | General Biology: Molecules and Cells [1] | 4 |
| BIOL 2602 | General Biology: Organisms and Ecology [1] | 4 |
| **Core Courses** | | |
| Select one course from two of the following groups: | | 7-9 |
| Group A | | |
| BIOL 3702 | Microbiology | 4 |
| BIOL 3702L | Microbiology Laboratory | 0 |
| BIOL 3711 | Cell Biology: Fine Structure | |
| Group B | | |
| BIOL 3725 | Mammalogy | 3 |
| BIOL 3730 | Human Physiology | |
| Group C | | |
| BIOL 3740 | Plant Diversity | |
| BIOL 3741 | Animal Diversity | |
| Select 13-15 semester hours of courses in the Department of Biological Sciences at the 3000-5000 level. At least two of these courses must have a laboratory component. | | 13-15 |
| **Capstone Course** | | |
| BIOL 4861 | Senior Biology Capstone Experience | 2 |
| **Electives** | | |
| Select 32 s.h. of Biological Science credit. | | 32 |
| **Additional Course Work** | | |
| CHEM 1515 & 1515L | General Chemistry 1 and General Chemistry 1 Laboratory | 4 |
| CHEM 1516 & 1516L | General Chemistry 2 and General Chemistry 2 Laboratory | 4 |
| Elementary and Intermediate foreign language | | 4 |
| Strongly recommended: | | |
| CHEM 3719 & 3719L | Organic Chemistry 1 and Organic Chemistry 1 Laboratory | |
| CHEM 3720 & 3720L | Organic Chemistry 2 and Organic Chemistry 2 Laboratory | |
| PHYS 1501 & 1501L | Fundamentals of Physics 1 and Fundamentals of Physics Laboratory 1 | |
| PHYS 1502 & 1502L | Fundamentals of Physics 2 and Fundamentals of Physics Laboratory 2 | |
| Total Semester Hours | | 118-123 |

[1] The general biology courses are prerequisites for genetics and all core and upper-division courses.

Students seeking admission to medically related professional schools should complete the BS program.

The mathematics, physics and chemistry courses may not be taken under the credit/no credit option. (For General University Requirements (http://catalog.ysu.edu/undergraduate/general-information/academic-policies-procedures/general-education-requirements), see the Academic Policies and Procedures section of the Undergraduate Catalog.)

**Recommended core curriculum meeting science requirements of medically related and other professional schools.**

| | | |
|---|---|---|
| **Year 1** | | |
| **Fall** | | **S.H.** |
| BIOL 2601 | General Biology: Molecules and Cells | 4 |
| CHEM 1515 | General Chemistry 1 | 4 |
| CHEM 1515R | Recitation for General Chemistry 1 (opt) | 1 |
| ENGL 1550 or ENGL 1549 | Writing 1 (electives may be substituted if excused based on results of Placement Test) or Writing 1 with Support | 3-4 |
| GER AL/SS/SPA | | 3 |
| | Semester Hours | 15-16 |
| **Spring** | | |
| BIOL 2602 | General Biology: Organisms and Ecology | 4 |
| CHEM 1516 | General Chemistry 2 | 4 |
| CHEM 1516R | Recitation for General Chemistry 2 (opt) | 1 |
| ENGL 1551 | Writing 2 (electives may be substituted if excused based on results of Placement Test) | 3 |
| GER elective (COMM 1545 recommended) | | 3 |
| | Semester Hours | 15 |
| **Year 2** | | |
| **Fall** | | |
| Biology Core Course | | |
| Select one of the following: | | 3-5 |
| BIOL 3730 | Human Physiology | |
| BIOL 3711 | Cell Biology: Fine Structure | |
| BIOL 3740 | Plant Diversity | |
| MATH 1570 or MATH 1571 | Applied Calculus 1 or Calculus 1 | 4 |
| GER Elective (AL) | | 3 |
| General Electives | | 3 |

| | | |
|---|---|---|
| Select an additional 3 s.h. | | 3 |
| | Semester Hours | 16-18 |
| **Spring** | | |
| Biology Core Course | | |
| Select one of the following: | | 3-5 |
| BIOL 3730 | Human Physiology | |
| BIOL 3721 | Genetics | |
| BIOL 3741 | Animal Diversity | |
| Introductory Foreign Language | | 4 |
| GER Elective (SI) | | 3 |
| General Electives | | 6 |
| | Semester Hours | 16-18 |
| **Year 3** | | |
| **Fall** | | |
| BIOL 3700-5800 course w/ lab | | 4 |
| Intermediate Foreign Language | | 4 |
| GER electives (PS), (SI) | | 6 |
| General Elective | | 3 |
| | Semester Hours | 17 |
| **Spring** | | |
| BIOL 3700-5800 course w/ lab | | 4 |
| BIOL 3700-5800 course | | 3-4 |
| GER electives (AL), (PS) | | 6 |
| General Elective | | 3 |
| | Semester Hours | 16-17 |
| **Year 4** | | |
| **Fall** | | |
| BIOL 3700 course | | 3-4 |
| General Electives | | 9 |
| | Semester Hours | 12-13 |
| **Spring** | | |
| BIOL 3700-5800 course | | 4 |
| BIOL 4861 | Senior Biology Capstone Experience | 2 |
| General Electives | | 9 |
| | Semester Hours | 15 |
| | Total Semester Hours | 122-129 |

# Learning Outcomes

The department's learning outcomes for the BA in biology are as follows:

- Students will be fluent in the terminology of the biological sciences.
- Students will be competitive for entry into the workplace.
- Students will be familiar with the scientific process and the process of hypothesis testing.
- Students should be able to reason critically, both individually and in collaboration with other students.