

Requirements for a Bachelor of Science Degree in Biology at MTSU

- 1- 120 semester hours with a grade point average (GPA) of 2.00 or higher
- 2- Minimum of 25 percent of credit for degree earned at MTSU
- 3- 36 semester hours of upper division hours required (3000-4000 level courses); must be completed with an average GPA of 2.00 or higher
- 4- 30 upper division hours must be completed at MTSU
- 5- Maximum of 60 semester hours of non-course credit (ex: credit by examination, service experience credit, etc.)
- 6- 60 semester hours must be from senior college credit
- 7- At least 9 upper division semester hours for Biology must be from MTSU.
- 8- At least 3 upper division hours for the minor must be from MTSU
- 9- 42 semester hours in Biology are required (2.0 or higher GPA required in major courses)

General Education Requirements (41 hours):

COMMUNICATION (9 hours)

ENGL 1010
ENGL 1020
COMM 2200

HISTORY (6 hours)

Choose two: HIST 2010, HIST 2020,
HIST 2030

HUMANITIES AND/OR FINE ARTS

(9 hours)

Choose one: ENGL 2020, 2030, or
HUM 2610.
Choose two with different prefixes:
ANTH 2210, ART 1030, 1920, DANC
1000, HIST 1010, 1020, 1110, 1120,
MUS 1030, PHIL 1030, THEA 1030

MATHEMATICS (3 hours)

MATH 1910

NATURAL SCIENCES (8 hours)

BIOL 1110 & 1111 Course is also
counted toward Biology major.
CHEM 1110 & 1111

SOCIAL/BEHAVIORAL SCIENCES

(6 hours)

Choose two (different prefixes):
AAS 2100, ANTH 2010,
EMC/JOUR/RIM 1020, ECON 2410,
2420, GEOG 2000, GS 2010, HLTH
1530/1531, PS 1010, PS 1005, PSY
1410, RS 2030, SOC 1010, 2010,
WGST 2100

The Biology Major

The Biology major requires a minimum of 42 semester hours:

1) A **29 hour core curriculum:**

BIOL 1000 Introduction to the Biology Major

BIOL 1110 and **BIOL 1120** a two semester General Biology sequence

BIOL 2230 Microbiology

BIOL 3250 Genetics

BIOL 3400 General Ecology

BIOL 3060 Diversity of Eukaryotic Life

BIOL 4110 General Physiology OR **BIOL 4210** Cell and Molecular Biology

OR **BIOL 4500** Plant Physiology

BIOL 4200 Senior Seminar

2) A **10 hour minimum concentration** in one of the following areas:

Genetics & Biotechnology Concentration:

BIOL 4550 Biotechnology

Pick one of the following:

BIOL 4450 Molecular Genetics

BIOL 4460 Human Genetics

Pick one of the following:

BIOL 4270 Trans. Elect. Microscopy

BIOL 4290 Scan. Elec. Microscopy

BIOL 4300 Immunology

BIOL 4450 Molecular Genetics

BIOL 4460 Human Genetics

BIOL 4510 Food/Industrial Micro.

BIOL 4570 Prin. Toxicology

BIOL 4720 Animal Development

BIOL 4750 Plant Biotechnology

Physiology Concentration:

BIOL 3010 Embryology

BIOL 3020 Comp. Anat.

BIOL 3340 Human Pathophysiology

BIOL 4110 Gen. Physiology*

BIOL 4130 Histology

BIOL 4170 Endocrinology

BIOL 4210 Cell & Molecular*

BIOL 4300 Immunology

BIOL 4440 Gen. Virology

BIOL 4500 Plant Physiology*

BIOL 4520 Plant Anatomy

BIOL 4560 Neurobiology

BIOL 4570 Prin. Toxicology

**only if not used for core requirement*

Ecology and Organismal Biology:

BIOL 3500 Evolution

Pick two of the following:

BIOL 3020 Comp. Anat. of the Vertebrates

BIOL 3040 Entomology

BIOL 3050 Parasitology

BIOL 4080 Mycology

BIOL 4090 Forest Ecology

BIOL 4140 Invertebrate Zoology

BIOL 4180 Vertebrate Zoology

BIOL 4220 Ichthyology

BIOL 4330 Biome Analysis

BIOL 4390 Ethology (Animal Behavior)

BIOL 4570 Principles of Toxicology

BIOL 4580 Marine Biology

BIOL 4590 Prin. of Environ. Toxicology

Microbiology Concentration:

BIOL 3050 Parasitology

BIOL 3210 Environmental Microbiology

BIOL 4080 Mycology

BIOL 4300 Immunology

BIOL 4430 Diagnostic Microbiology

BIOL 4440 General Virology

BIOL 4450 Molecular Genetics

BIOL 4510 Food/Industrial Microbiology

BIOL 4550 Biotechnology

BIOL 4730 Microbial Phys. & Biochem

Ecology and Organismal Biology Tracks - students may choose to follow one of the track options described below:

Botany Track: Choose from: 4080 4090, 4330. Students in this track are recommended to take BIOL 4500 Plant Physiology as part of their core curriculum.

Zoology Track: Choose from: 3020, 3040, 3050, 4140, 4180, 4220, and 4390. Students in this track are recommended to take BIOL 4110 General Physiology as part of their core curriculum.

Ecology Track: Choose at least two courses from: 4090, 4330, 4580 and one course from among the others (if only two courses are chosen from the list of three).

General Biology Track (satisfies teacher education requirements): choose one course from each of the following three areas:

1. BIOL 3020 or 4180
2. BIOL 4080
3. BIOL 3040 or 3050 or 4140

Course substitutions can be made within the concentration if approved by the department chair.

3) 1-3 hours of Biology Upper Division elective. 36 total hours of Biology courses are required. (BIOL 3000 or 4540 cannot serve as an elective for the major)

4) The following are also requirements for Biology Majors:

MATH 1910 Calculus I

BIOL 4350 Biometry OR **MATH 1920** Calculus II OR **MATH 2050** Probability and Statistics

CHEM 1110, 1120 two semester sequence of General Chemistry with labs

CHEM 2030 OR **3010** Organic Chemistry