Duluth Campus

Biology B.S.

Biology

Swenson College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2015
- Required credits to graduate with this degree: 120
- Required credits within the major: 80 to 85
- Degree: Bachelor of Science

The B.S. in biology offers preparation for graduate school and a sound basis for professional training in biological and health sciences. Biology is a broad field, and students can tailor their programs to fit their own needs and interests. To provide flexibility in pursuing personal interests or career preparation, the student chooses 18 credits of upper division biology electives.

The Department of Biology encourages students to develop as active scholars and to participate in undergraduate research. The B.S. degree is detailed and specific with a concentration in science related coursework.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

The Board of Regents, on recommendation of the faculty, grants degrees from the University of Minnesota. Requirements for an undergraduate degree from University of Minnesota Duluth include the following:

1. Students must meet all course and credit requirements of the departments and colleges or schools in which they are enrolled including an advanced writing course. Students seeking two degrees must fulfill the requirements of both degrees. However, two degrees cannot be awarded for the same major.
2. Students must complete all requirements of the Liberal Education Program.
3. Students must complete a minimum of 120 semester credits.
4. At least 30 of the last 60 degree credits earned immediately before graduation must be awarded by UMD.
5. Students must complete at least half of their courses at the 3xxx-level and higher at UMD. Study-abroad credits earned through courses taught by UM faculty and at institutions with which UMD has international exchange programs may be used to fulfill this requirement.
6. If a minor is required, students must take at least three upper division credits in their minor field from UMD.
7. The minimum cumulative UM GPA required for graduation will be 2.00 and will include only University of Minnesota coursework. A minimum UM GPA of 2.00 is required in each UMD undergraduate major and minor. No academic unit may impose higher grade point standards to graduate.
8. Diploma, transcripts, and certification will be withheld until all financial obligations to the University have been met.

Program Requirements

1. A minor or second major from another area of study outside the Department of Biology with the exception of the Natural History Minor.

This schedule presupposes placement into BIOL 1011, CHEM 1153, 1154 which require the prerequisites of high school algebra and high school chemistry and a Math ACT of 21 or College Algebra.

Biology Core Courses (26 cr)

BIOL 1011 - General Biology I [LE CAT, NAT SCI] (5.0 cr)
BIOL 1012 - General Biology II [SUSTAIN] (5.0 cr)
BIOL 3100 - Cell Biology (3.0 cr)
BIOL 2201 - Genetics (3.0 cr)

BIOL 2801 - General Ecology (3.0 cr)
BIOL 3987 - Communication in Biology (2.0 cr)
BIOL 3401 - Evolution (3.0 cr)
BIOL 2102 - Cell Biology Laboratory (2.0 cr)
or BIOL 2202 - Genetics Laboratory (2.0 cr)
or BIOL 2802 - Ecology Laboratory (2.0 cr)

Biology Electives (18 cr)

Take 18 cr, at least one course from the Biology Diversity category, at least 2 remaining courses must be 3xxx or above. Must include a minimum of 2 lab courses or courses with a lab component; 2 of the following may be used BMS 5501, BMS 5545, BMS 5555, BMS 5601, BMS 5602; 2 cr of SSP 3002 may be substituted for BIOL 3993 an upper division elective with department approval. A maximum of 2 cr of BIOL 3993; a maximum of 4 cr of BIOL 3994 and a maximum of 1 cr of BIOL 3996 may be applied.
BIOL 2102, 2202, 2802 may only be used if not used for core laboratory requirements.

Take 18 or more credit(s) from the following:

- BIOL 2102 - Cell Biology Laboratory (2.0 cr)
- BIOL 2202 - Genetics Laboratory (2.0 cr)
- BIOL 2763 *{Inactive}*[LE CAT5, LECD CAT05, NAT SCI, CDIVERSITY] (2.0 cr)
- BIOL 3771 - Human Anatomy (4.0 cr)
- BIOL 2802 - Ecology Laboratory (2.0 cr)
- BIOL 3xxx
- BIOL 4xxx
- BIOL 5xxx
- **Biology Diversity category**
  - BIOL 3601 - Plant Diversity (3.0 cr)
  or BIOL 3701 - Animal Diversity (4.0 cr)
  or BIOL 3502 - General Microbiology (4.0 cr)
  or BIOL 4503 *{Inactive}*(4.0 cr)
  or BIOL 5515 - Microbial Diversity and Phylogeny (3.0 cr)

Courses From Other Programs (20 - 21 cr)

Advanced Writing
WRIT 3150 - Advanced Writing: Science (3.0 cr)

General Chemistry
CHEM 1153 - General Chemistry I [LE CAT, NAT SCI] (4.0 cr)
CHEM 1154 - General Chemistry Lab I [LE CAT, NAT SCI] (1.0 cr)
CHEM 1155 - General Chemistry II (4.0 cr)
CHEM 1156 - General Chemistry Lab II (1.0 cr)

Organic Chemistry
CHEM 2541 - Organic Chemistry I (3.0 cr)
CHEM 2543 - Organic Chemistry I Laboratory (1.0 cr)

Additional Chemistry
CHEM 2212 - Environmental Chemistry [NAT SCI, SUSTAIN] (4.0 cr)
or GEOL 3710 *{Inactive}*(3.0 cr)
or CHEM 2222 - Quantitative Analysis (3.0 cr)
CHEM 2223 - Quantitative Analysis Laboratory (1.0 cr)
or CHEM 2542 - Organic Chemistry II (3.0 cr)
CHEM 2544 - Organic Chemistry II Laboratory (1.0 cr)

Quantitative Reasoning Requirements (Four courses 16 - 20 cr)

Take a different course from each of the four following subgroups.

Subgroup 1: Calculus I
MATH 1290 - Calculus for the Natural Sciences [LE CAT2, LOGIC & QR] (5.0 cr)
or MATH 1296 - Calculus I [LE CAT, LOGIC & QR] (5.0 cr)
or MATH 1596 *{Inactive}*[LE CAT2, LOGIC & QR] (5.0 cr)

Subgroup 2: Physics I
PHYS 1001 - Introduction to Physics I [LE CAT, NAT SCI] (5.0 cr)
PHYS 2013 - General Physics I [LE CAT, NAT SCI] (4.0 cr)
or PHYS 2017 - Honors: General Physics I [NAT SCI] (4.0 cr)
PHYS 2014 - General Physics Lab I [NAT SCI] (1.0 cr)

Subgroup 3: Additional Quantitative Reasoning Requirement I
MATH 1297 - Calculus II [LOGIC & QR] (5.0 cr)
or MATH 1597 *{Inactive}*[LOGIC & QR] (5.0 cr)
or STAT 2411 - Statistical Methods [LE CAT, LOGIC & QR] (3.0 cr)
or STAT 3611 - Introduction to Probability and Statistics (4.0 cr)

Subgroup 4: Additional Quantitative Reasoning Requirement II
CS 1121 - Introduction to Programming in Visual BASIC.NET [LE CAT, LOGIC & QR] (3.0 cr)

or CS 1141 *{Inactive}*(3.0 cr)
or CS 1411 - Introduction to Programming in Matlab (4.0 cr)
or MATH 1297 - Calculus II [LOGIC & QR] (5.0 cr)
or MATH 1597 *{Inactive}*[LOGIC & QR] (5.0 cr)
or MATH 5233 - Mathematical Foundations of Bioinformatics (3.0 cr)
or STAT 4060 - Introduction to Biostatistics (3.0 cr)
or STAT 5411 - Analysis of Variance (3.0 cr)
or PHYS 1002 - Introduction to Physics II (5.0 cr)
or PHYS 2015 - General Physics II (4.0 cr)
PHYS 2016 - General Physics Lab II (1.0 cr)