

BIOLOGY

Chair: Mark Reedy

Associate Chair: Alistair Cullum

Department Office: Hixson-Lied Science Building, Room 448

Professors: T. Burk, J. Platz, J. Schalles; Professors Emeriti: R. Belknap, H. Nickla, A. Schlesinger;

Associate Professors: A. Cullum, M. Reedy, M. Vinton; Associate Professor Emerita: J. Roberts; Assistant Professors: C. Austerberry, C. Brockhouse, S. Cho, C. Fassbinder-Orth, A. Shibata, K. van Dijk.

Department Description: The Creighton Biology Department offers foundational and advanced courses across major subdisciplines of biology. Lecture and lab experiences are grounded in first principles. Modern facilities, faculty active in research and a commitment to mentoring students all contribute to a rich environment for developing a sound foundation in life science and opportunities to participate in original research.

Web Contact/Information: Additional information about this department may be found at <http://biology.creighton.edu/>. However, for definitive details, students are strongly encouraged to check the University's website for Bulletin changes at <http://www.creighton.edu/Registrar>.

PROGRAMS IN BIOLOGY

Specific Requirements for Admission to the Biology Major: Completion of a Creighton BIO course at 200-level or above with a grade of "C" or higher.

B. S., Major in Biology: 33 Credits

Course Requirements

(All of the following:)

BIO 211 General Biology: Molecular And Cellular 4 credits
BIO 212 General Biology: Organismal And Population 4 credits

(Twenty-five additional upper-division BIO credits from the list below:)

This upper-division coursework must include the following:

Seven lecture courses (3 credits or 4 credits)

A minimum of four lecture courses from the 300 and/or 400 levels, and two lecture courses from the 500 level. At least one of these seven lecture courses must come from each of three areas: 1. Cellular/Molecular, 2. Organismal, 3. Population/ Ecology/ Evolution. These areas are designated as "Cell," "Org.," and "Pop.," respectively, in the third column of the course list below.

Four laboratory courses

This requirement may be satisfied by any combination of 4 credit lecture+laboratory or 1 or 2 credit laboratory-only courses. These courses are designated by "Lab" in the course list below. Lecture+laboratory courses may apply simultaneously to both the lecture and laboratory requirements.

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|---------|----------------------------------------|-----------|-----------|
| BIO 317 | Genetics | Cell | 3 credits |
| BIO 318 | Genetics Laboratory | Lab | 1 credit |
| BIO 333 | Vertebrate Comparative Anatomy | Lab, Org | 4 credits |
| BIO 335 | Zoology | Lab, Org | 4 credits |
| BIO 341 | General Botany | Lab, Org | 4 credits |
| BIO 351 | Microbiology | Lab, Cell | 4 credits |
| BIO 362 | Cell Structure and Function | Cell | 3 credits |
| BIO 385 | Ecology, Geography and Health of Lakes | Lab, Pop | 4 credits |
| BIO 390 | Environmental Science | Pop | 3 credits |
| BIO 401 | Biostatistics | Lab | 4 credits |
| BIO 419 | Molecular Biology Laboratory | Lab | 2 credits |
| BIO 432 | Introduction to Immunology | Cell | 3 credits |
| BIO 435 | Coastal and Estuarine Ecology | Lab, Pop | 4 credits |
| BIO 449 | Animal Physiology | Org | 3 credits |
| BIO 450 | Animal Physiology Laboratory | Lab | 1 credit |
| BIO 455 | Biology of the Protists | Lab, Cell | 4 credits |
| BIO 467 | Developmental Biology (Embryology) | Lab, Org | 4 credits |
| BIO 481 | Terrestrial Ecology | Lab, Pop | 4 credits |
| BIO 483 | Vertebrate Natural History Lecture | Pop | 3 credits |
| BIO 484 | Vertebrate Natural History Laboratory | Lab | 1 credit |

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|---------|------------------------------------------|-----------|-----------|
| BIO 485 | Marine and Freshwater Ecology | Pop | 3 credits |
| BIO 486 | Freshwater Ecology Laboratory | Lab | 1 credit |
| BIO 487 | Marine Ecology Laboratory | Lab | 2 credits |
| BIO 501 | Bioinformatics: Genomics Approach | Lab, Cell | 4 credits |
| BIO 517 | Current Topics in Genetics | Cell | 3 credits |
| BIO 520 | Cytogenetics | Lab, Cell | 4 credits |
| BIO 523 | Environmental Toxicology | Pop | 3 credits |
| BIO 532 | Current Topics in Cell. and Mol. Biology | Cell | 3 credits |
| BIO 539 | Ecology of Zoonotic Diseases | Pop | 3 credits |
| BIO 549 | Environmental Physiology | Org | 3 credits |
| BIO 551 | Current Topics in Microbiology | Cell | 3 credits |
| BIO 559 | Special Topics in Physiology | Org | 3 credits |
| BIO 561 | Entomology | Lab, Org | 4 credits |
| BIO 562 | Neurobiology | Cell, Org | 3 credits |
| BIO 563 | Neurobiology Laboratory | Lab | 2 credits |
| BIO 567 | Current Topics in Neuroscience | Cell | 3 credits |
| BIO 571 | Animal Behavior | Org | 3 credits |
| BIO 572 | Animal Behavior Laboratory | Lab | 2 credits |
| BIO 580 | Current Topics in Ecology | Pop | 3 credits |
| BIO 581 | Evolution | Lab, Pop | 4 credits |

BIO 493, 495 and 497 do not apply toward the major requirements. BIO 490 can be applied toward the lab requirement if taken twice.

Upon petition prior to enrollment, courses in departments other than Biology (such as CHM 371 or BMS 521) may be approved for non-laboratory biology major credit; a student may exercise this option for only one such course.

Requisite Courses: Twenty-four credits in the following courses: CHM 203, 204, 205 (or 285), 206 (or 286), 321, 322, 323, 324; PHY 211, 212.

BIOLOGY MINOR

Program Description: The Biology minor introduces students to foundational and advanced courses across the major subdisciplines of modern biology. Lecture and lab experiences are grounded on fundamental principles. In addition to the General Biology courses, a diversity of life science topics are available in upper division courses at the cellular and molecular, organismal, and ecological and evolutionary biology levels. Students can design a study plan which allows an in-depth exploration of one area or a broader survey of several subdisciplinary areas of biology.

Contact: Chair, Department of Biology

(All of the following:)

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|---------------------------------------------------------------|--------------------------------------------|------------|
| BIO 211 | General Biology: Molecular and Cellular | 4 credits |
| BIO 212 | General Biology: Organismal and Population | 4 credits |
| Ten additional credits in BIO courses numbered 300 and above. | | 10 credits |

The ten additional credits must include at least one lecture+laboratory or laboratory-only course.

Courses in departments other than Biology may not be applied towards this minor

BIO 490, BIO 493, BIO 495, and BIO 497 cannot be applied towards this minor.

Teacher Certification

Students who plan to teach Biology in secondary schools should consult with the Education Department, the Biology Department, and the appropriate agency in the state in which they intend to teach. PHY 187 and either ATS 113 and 114, EVS 443 or PHY 107 and 108 should be substituted for PHY 211 and 212 as supporting courses.

Certificate Programs in University College

This department does not offer a certificate program to students in University College.

For all BIO courses, please refer to page 333.