Chair: Dr. Sean Bignami

The Biology Department strives to develop wise and honorable citizens capable of excelling as witnesses of Christ and in their vocations within the biological sciences or elsewhere. Graduates with a Bachelor of Arts or Science in biology will be able to articulate their understanding of the natural world, address pressing social and scientific challenges from a Christian perspective, and continue to recognize their world views in order to gain the ability to confidently approach, analyze, and solve academic, social, and theological challenges with which students improve their understanding of the natural world, their own faith, and their role in society.

Outcomes

Biology Program Learning Outcomes

- Demonstrate competency in written and oral communication.
- Demonstrate competency of content in genetics and cell, molecular and organismal biology.
- Apply appropriate mathematical and statistical analysis to data.
- Read, analyze and critique primary scientific literature.
- Demonstrate competency in basic scientific laboratory techniques.
- Articulate a Christian worldview from a Lutheran perspective on various scientific topics.

Majors

Undergraduate Majors

Bachelor of Arts Degree:
Biology (p. 1)

Bachelor of Science Degree:
Biology (p. 1)

Biology: Bachelor of Arts Degree

Students who choose BIO 246, BIO 247, BIO 351 and BIO 355 in the Bachelor of Arts in Biology degree may also complete the Pre-Nursing (http://catalog.cui.edu/undergraduate/school-professional-studies/#minorstext) minor and will have met all of the prerequisite requirements for Concordia’s Accelerated Bachelor of Science in Nursing (http://catalog.cui.edu/adult-graduate-non-traditional-degrees/professional-studies/nursing-degrees/#degreestext) degree.

Note: Students who select the Bachelor of Arts degree in Biology must take CHE 221 in Enduring Questions & Ideas (GE) (http://catalog.cui.edu/undergraduate/academic-information/general-education-requirements).

Core

BIO 111 General Biology I 4
BIO 112 General Biology II 4
BIO 496 Research in Biology 2
BIO 499 Senior Thesis 1
CHE 222 Chemistry II 4
SCI 455 History and Philosophy of Science 3
SCI 495 Research Methods 1
Choose 1 of the following courses: 4

BIO 308 Molecular Genetics 4

Biology: Bachelor of Science Degree

Note: Students who select the Bachelor of Science degree in Biology must take CHE 221 and MTH 271 in Enduring Questions & Ideas (GE) (http://catalog.cui.edu/undergraduate/academic-information/general-education-requirements).

Core

BIO 111 General Biology I 4
BIO 112 General Biology II 4
BIO 355 Biostatistics 3
BIO 496 Research in Biology 2
BIO 499 Senior Thesis 1
CHE 222 Chemistry II 4
CHE 321 Organic Chemistry I 4
CHE 322 Organic Chemistry II 4
MTH 272 Calculus II 4
SCI 455 History and Philosophy of Science 3
SCI 495 Research Methods 1
Choose 1 of the following courses: 4

BIO 308 Molecular Genetics 4
BIO 309 Population Genetics 4

Choose 1 of the following courses: 4
- **BIO 345**  Evolutionary Zoology  4
- **BIO 350**  Molecular and Cellular Biology  4
- **BIO 351**  General Microbiology  4

Choose 1 of the following course pairings:  8

- **PHY 211**  Physics I  4
- **PHY 212**  Physics II  4

**OR**

- **PHY 221**  Calculus-based Physics I  4
- **PHY 222**  Calculus-based Physics II  4

**Electives**

Choose a minimum of 20 units from the following courses (* if not taken above):

- **BIO 246**  Human Anatomy and Physiology I  4
- **BIO 247**  Human Anatomy and Physiology II  4
- **BIO 308**  Molecular Genetics *  4
- **BIO 309**  Population Genetics *  4
- **BIO 317**  Ecology  4
- **BIO 331**  Marine Biology  4
- **BIO 341**  Plant Biology  4
- **BIO 345**  Evolutionary Zoology *  4
- **BIO 350**  Molecular and Cellular Biology *  4
- **BIO 351**  General Microbiology *  4
- **BIO 361**  Field Biology Techniques  3
- **BIO 390**  Practicum: Biology  1-4
- **BIO 401**  Biology Seminar  2
- **CHE 421**  Introduction to Biochemistry  4
- **PHI 467**  Bioethics and Healthcare Professions  3
- **SCI 301**  Earth Science  3
- **SCI 318**  Ocean Science  4

Total Units  70

**Biology Programs**

**Biology Programs**

**Information for students interested in pursuing a career in the medical professions:**

Prerequisites for graduate studies in the medical professions differ by the discipline (e.g. M.D., D.O., D.D.S., R.N., D.P.T., etc.) as well as by the school. The Biology Department at Concordia University Irvine can direct students to the proper coursework needed to help them achieve their professional goals. Students interested in a medical profession should make an appointment with Medical Science Program Director, Prof. Scott Gaines (NOTE: A Biology degree is NOT required to apply to medical science professional schools and students from other majors are encouraged to meet with Prof. Gaines to discuss graduate opportunities in the medical sciences).

**Minor**

**Undergraduate Minor**

Biology (p. 2)

**Biology Minor**

- **BIO 111**  General Biology I  4
- **BIO 112**  General Biology II  4

Choose a minimum of 13 units from the following (at least 11 units must be 300-400 level courses):

- **BIO 246**  Human Anatomy and Physiology I  4
- **BIO 247**  Human Anatomy and Physiology II  4
- **BIO 308**  Molecular Genetics  4
- **BIO 309**  Population Genetics  4
- **BIO 317**  Ecology  4
- **BIO 331**  Marine Biology  4
- **BIO 341**  Plant Biology  4
- **BIO 345**  Evolutionary Zoology  4
- **BIO 350**  Molecular and Cellular Biology  4
- **BIO 351**  General Microbiology  4
- **BIO 355**  Biostatistics  3
- **BIO 361**  Field Biology Techniques  3
- **BIO 390**  Practicum: Biology  1-4
- **BIO 401**  Biology Seminar  2
- **BIO 496**  Research in Biology  2
- **BIO 499**  Senior Thesis  1
- **SCI 301**  Earth Science  3
- **SCI 318**  Ocean Science  4
- **SCI 455**  History and Philosophy of Science  3
- **SCI 495**  Research Methods  1

Total Units  21-24