



BIOL-080 – Biology – Advanced Level

College Preparation and Upgrading

Effective Term & Year: Fall 2024

Course Outline Review Date: 2029-03-01

Program Area: Upgrading for Academic and Career Entry

Description:

Biology 080 students study the scientific method and apply this process to laboratory procedures. The theory of evolution is introduced along with general studies of microorganisms, plants, and animals. Principles of ecology are introduced using examples from local ecosystems. Laboratory experiences include field sampling.

Program Information:

This course is at the ABE Advanced Level and may be used for admission purposes in other programs or institutions.

Delivery Methods: Directed/Guided Studies

Credit Type: ABE Credits

Credits: 0

Instructional Activity and Hours:

Activity	Hours
Classroom, Directed Studies or Online Instruction	45
Seminar/Tutorials	
Laboratory/Studio	45
Practicum/Field Experience	
Co-op/Work Experience	

Other

Total	90
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Course Requisites:

None

Flexible Assessment: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, or work-based assessment are used to identify, assess, and recognize prior skills, competencies, and knowledge to achieve course credit. Tuition fees apply, refer to Policy [2.5.5 Prior Learning Assessment and Recognition \(PLAR\)](#) or contact an education advisor for more information.

Course Transfer Credit:

For information about receiving transfer credit for courses taken at either British Columbia or Alberta institutions, please see <https://www.bctransferguide.ca/> or <https://transferalberta.alberta.ca> . For more transfer credit information, please visit <https://www.cotr.bc.ca/Transfer>

All requests for course transfer credit from institutions in British Columbia or elsewhere should go to the College of the Rockies Enrolment Services office.

Textbook Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Campbell, Neil A. et al. 2007. *Modern Biology*. 3rd Edition. Pearson Prentice-Hall.

Simon, Eric J. et al. 2010. *Campbell Essential Biology*. 4th Edition. Pearson.

Please see the instructor's syllabus or check COTR's online text calculator <http://go.cotr.bc.ca/tuition/tCalc.asp> for a complete list of the currently required textbooks.

Textbooks for Directed Studies are available on loan from the COTR Library.

Learning Outcomes:

All Biology 080 – Advanced Biology learning outcomes follow those outlined in the current edition of Adult Basic Education: A Guide to Upgrading in British Columbia’s Public Post-Secondary Institutions – An Articulation Handbook.

<https://www.bctransferguide.ca/transfer-options/adult-basic-education/past-abe-guides/>
(2023-2024 ABE Articulation Guide).

Biology learners will:

- Obtain the prerequisite knowledge and skills that will provide a basis for further academic and career / vocational education and training
- Demonstrate awareness of the diversity and interconnectedness of organisms
- Integrate traditional knowledge focusing on local First People’s content
- Use scientific methods to evaluate information and to interpret experiences

- Communicate about life sciences in their own words and cite references appropriately
- Work independently and also as part of a team, where appropriate
- Evaluate media regarding issues in life sciences
- Demonstrate an awareness of ethical issues relevant to life sciences

All biology courses must include a minimum of seven dedicated laboratory and /or fieldwork activities, wherein biology learners will:

- Write a lab report
 - Demonstrate familiarity with common lab and field equipment and its use
 - Conduct lab and field procedures safely and ethically
 - Demonstrate microscope skills
 - Collect and record data effectively
 - Analyze and interpret data collected
 - Communicate results and conclusions
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Course Topics:

A. Cell Biology

- Identify the levels of biological organization
- Describe organic macromolecules and their monomers:
 - Proteins
 - Carbohydrates
 - Lipids

- Nucleic Acids
- Describe the cell theory
- Describe and compare major structures and their functions in prokaryotic and eukaryotic cells
- Outline the processes of photosynthesis and cellular respiration and explain their roles in living systems
- Explain cell division in terms of sexual and asexual reproduction

B. Evolution

- Cite evidence for evolutionary theory
- Explain the mechanisms of evolution
- Discuss the origin of life

C. Diversity of Life

- Demonstrate an understanding of classification
- Identify major taxonomic groups
- Identify structures and distinguishing characteristics and describe life processes for the following groups:
 - Viruses
 - Bacteria
 - Protists
 - Fungi
 - Plants – nonvascular and vascular
 - Animals – invertebrates and vertebrates

D. Ecology

- Describe energy flow and nutrient cycles within ecosystems
- Characterize ecosystems and the interactions therein
- Describe ecological changes over time
- Define biosphere and characterize biomes
- Explore and analyze ecological issues, such as:
 - Climate change
 - Habitat destruction and/or restoration
 - Biodiversity
 - Species extinctions
 - Environmental stewardship

See instructor's syllabus for the detailed outline of weekly readings, activities, and assignments.

Evaluation and Assessments

Assessment Type: Directed/Guided Studies

Assessment Type	% of Total Grade
Assignments	15%
Labs	20%
Chapter Tests	20%
Midterms	20%
Final Exam	25%
Total	100%

Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=95	94-90	89-85	84-80	79-75	74-70	69-65	64-60	59-55	54-50	<50

Pass requirements: None

Evaluation Notes: A grade of “D” grants credit, but may not be sufficient as a prerequisite for sequential courses.

Evaluation Notes Comments:

Please see the instructor syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments and use of electronic aids.

Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a “0” on the exam.

Academic Policies:

College of the Rockies policies related to courses can be found at <https://cotr.bc.ca/about-us/college-policies/> and include the following:

- Policy 2.1.4 Course Audit
- Policy 2.4.1 Credential Framework
- Policy 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Rights, Responsibilities and Conduct
- Policy 2.4.8 Academic Performance
- Policy 2.4.9 Student Feedback and Concerns
- Policy 2.4.11 Storage of Academic Works
- Policy 2.5.3 Student Appeal

- Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR)
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Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational, employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.