



BIOL-151 – Biology of the Environment

University Arts and Science

Effective Term & Year: Fall 2026
Course Outline Review Date: 2031-04-01

Program Area: Math and Sciences

Description:

Biology 151 focuses on environmental and ecological topics within biology from a local perspective, informing students about local and global environmental issues, current events, and new and emerging technologies from a scientific perspective. With the help of their instructor, students will design and implement a research project that focuses on a local environmental issue and present it to members of the community.

Program Information:

This course is designed as a one semester lecture/lab offering for non-science majors and meets the requirement for a lab science elective in the Environmental Studies Certificate, Pre-Education Certificate, and Bachelor of Business Administration Degree Program. It is also of interest to Associate of Arts students who wish to learn more about environmental issues.

Note: BIOL 151 does not meet the requirements for a science major's course and therefore cannot be substituted for BIOL 101 or BIOL 102.

Delivery Methods: On-campus (Face-to-Face)

Credit Type: College of the Rockies Credits

Credits: 3

Course type/s: Lab Sciences, Sciences

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

Course Requisites:

None

Prior Learning and Recognition: Yes

Students are able to request formal recognition of their prior learning or experience outside the classroom. Challenge examination, portfolio-assisted assessment, work-based assessment or a combination of assessments that is appropriate 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:

Withgott, J., Laposata, M. and Murck, B.(2017). *Environment: The science behind the stories* (3rd Canadian Edition). Pearson Education.

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

Learning Outcomes:

Upon the successful completion of this course, students will be able to:

- explain fundamental principles of ecology, including energy flow through ecosystems, nutrient cycling, and the interdependence of organisms within food webs and biotic communities;
 - describe major biomes of the world and the environmental factors (climate, soil, and biological adaptation) that shape their distribution and diversity;
 - analyze the causes and biological consequences of human impacts on the environment such as habitat loss, invasive species, pollution, and overexploitation of natural resources, and provide examples of traditional and contemporary human interventions that have successfully addressed specific environmental problems;
 - critically evaluate the science behind global environmental challenges (including climate change, biodiversity loss, and ocean acidification) by evaluating all claims, scientific or otherwise, on the basis of their falsifiability and the strength of the evidence;
 - discuss the role of microevolution (random genetic variation, natural selection, and chance) and population dynamics in shaping the cyclic adaptation of species to environmental change and human activities;
 - assess the importance of biodiversity in providing ecosystem services (including clean water, pollination, and carbon storage), supporting human well-being, and maintaining genetic, species, and ecosystem diversity in the face of environmental stressors; and
 - distinguish scientific reasoning from other approaches to environmental issues by identifying the strengths and limitations of science; analyzing current events and media to differentiate evidence-based positions from those driven by ideology or distortion, regardless of viewpoint; and evaluating how science can inform policy and choices in an era of digitally amplified misinformation, disinformation, and artificial intelligence.
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Course Topics:

- Introduction to Environmental Science, Sustainability, and Scientific Reasoning
- Matter, Energy, and Fundamental Ecological Principles
- Evolution, Microevolution, and Population Dynamics
- Species Interactions, Community Ecology, and Biomes
- Biodiversity, Ecosystem Services, and Global Challenges
- Human Impacts on Ecosystems and Resources
- Air Pollution, Climate Change, and Ocean Acidification

- Resource Management and Human Interventions
- Conservation, Waste Management, and Environmental Health
- Environmental Ethics, Policy, and Critical Analysis of Current Issues

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

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face)

Assessment Type	% of Total Grade
Quizzes	5%
Midterms	30%
Final Exam (Cumulative)	30%
Lab Assignments	10%
Lab Project	25%
Total	100%

Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

Pass requirements:

A passing average (50% or higher) in both the theory and practical components.

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

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.