



## ENSC-101 – Introduction to Environmental Science

University Arts and Science

**Effective Term & Year:** Fall 2022

**Course Outline Review Date:** 2025-03-01

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**Program Area:** Math and Sciences

### Description:

This course introduces students to scientific analysis and communication of environmental issues. Students will learn about natural systems and the complex interactions among their biological, physical, chemical and anthropogenic components. Students will consider Western and Indigenous perspectives, governance, and economic factors to critically evaluate and communicate environmental problems. Students will investigate how those issues affect various aspects of the ecosphere, including humans, and will use integrated knowledge and perspectives to explore sustainable solutions. Laboratory activities, field trips and guest lectures will offer the opportunity to study regional environments and local environmental issues.

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### Program Information:

This course can be used as a required course or elective course of an Associate of Science or Associate of Arts degree at the College of the Rockies.

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

**Credit Type:** College of the Rockies Credits

**Credits:** 3

**Course type/s:** Sciences, Lab 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:**

- Earned a minimum grade of C+ (65%) in at least 1 of the following:
  - [ENFP 12](#) – English First Peoples 12
  - [ENST 12](#) – English Studies 12
  - [ENGL090](#) – English – Provincial Level

**Flexible Assessment:** Yes

In some cases students may be able to apply for recognition of prior learning outside the classroom. This flexible assessment process provides equivalent course credit. It is a rigorous process that may include external evaluation, worksite assessment, demonstration, standardized test, self-assessment, interview, products/portfolio, and challenge exam, or other measures as appropriate. Tuition fees apply. 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., Brennan, B. and Murck B. 2016. *Environment: The Science Behind the Stories*, Third Canadian Edition. Pearson

OR

Branfireun, M., Karr, S., Interlandi, J. and Houtman A. 2018. *Environmental Science for a Changing World*. Canadian edition

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.

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## Learning Outcomes:

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

- recognize environmental systems and issues from a scientific perspective and describe how science helps us understand the world;
  - describe Earth's systems: the atmosphere, hydrosphere, biosphere and lithosphere and identify the processes cycles and interactions between and within systems;
  - describe the impact that human activity has on the environment and recognize that humans are part of the ecosystems;
  - identify local and regional environmental issues;
  - describe traditional Indigenous and historic European relationships with the environment in BC;
  - explain how those relationships have changed over time as reflected in current environmental policies and legislation;
  - identify various causes and consequences of environmental change as they are experienced by Indigenous communities. Students will gain an understanding of the interaction between physical and social processes and the role they play in creating current day Indigenous landscapes and environments;
  - identify methodologies and applications of Indigenous and Western science with an emphasis on environmental change, animal behavior, evolution, sustainable practices, and implications of intrinsic ecological connections;
  - recognize how attitudes (including personal ones) affect our ability to find solutions;
  - apply critical and scientific thinking to come up with creative solutions to environmental challenges current and future;
  - critically evaluate the science, sources and credibility of information and research on environmental issues and sustainability;
  - apply scientific method to research, evaluate, synthesize and communicate environmental science knowledge, data, analyses and interpretations both orally and in written work;
  - recognize and discuss impacts of changing global environment;
  - recognize how a scientific understanding of the environment can cultivate a culture of environmental stewardship and environmental ethic;
  - critically evaluate the relationship between economics and environmental policy; and
  - demonstrate competence in basic statistics, interpretation of environmental data, constructing graphs.
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## Course Topics:

- Atmosphere – properties, structure, air pollution
- Lithosphere- fossil fuels, mineral resources, mining
- Hydrosphere – hydrologic cycle, water quantity, quality and distribution
- Biosphere – properties, ecosystems, nutrient cycling, biodiversity
- Ecology – ecosystems, population ecology, community ecology, species interactions
- Biodiversity – evolution, extinction, factors affecting biodiversity, invasive species, conservation
- Terrestrial ecosystems – soil ecosystems, pollution, degradation and protection, forest ecosystems, deforestation and forest management
- Aquatic ecosystems – surface water, ground water, water use, pollution
- Agriculture – food production, food security, pest management, biotech, sustainable agriculture
- Waste management – Solid waste, plastic waste, hazardous waste
- Governance – environmental law and policy, environmental ethics, environmental economics
- Indigenous ways of knowing nature – historic and current attitudes about the environment, early European settler’s attitudes toward the environment, current land and water use, development of values for conservation and sustainability
- Climate change – trends and solutions
- Energy alternatives – renewable energy
- Sustainability – strategies, trends, sustainable development

## OPTIONAL COURSE TOPICS:

- Urban environment – ecology, growth, transportation, waste, sustainability, water issues, air quality issues, sustainable communities
- Environmental Health – toxic agents, effects, mitigation

*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
Laboratory – Assignments/reports/presentations	35%
Lecture – Midterm(s)	30%
Lecture – Final Exam	35%
Total	100%

### Grade Scheme

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

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### **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 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Conduct (plagiarism, other cheating, behavioral misconduct)
- Policy 2.5.8 Academic Performance
- Policy 2.5.3 Grade Appeal
- Policy 2.4.9 Student Concerns Re Faculty

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### **Equivalent Course(s) and Course Code Changes**

Prior Course Code: TRMP 237 >> ENST 200

Date changed: January 2010

### **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.