

## OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

**Note:** The University reserves the right to amend course outlines as needed without notice.

<b>Course Code and Number:</b> EDUC 436		<b>Number of Credits:</b> 3 <a href="#">Course credit policy (105)</a>													
<b>Course Full Title:</b> Designs for Learning Secondary Science <b>Course Short Title:</b> Secondary Science															
<b>Faculty:</b> Faculty of Education, Community, and Human Development		<b>Department:</b> Teacher Education													
<b>Calendar Description:</b> Introduces goals of science education and pedagogical concepts and skills for effective teaching of grades 8-10 science courses using B.C. Ministry of Education curriculum. Explores the nature of science, constructivism, Indigenous science, and science instructional models.															
<b>Prerequisites (or NONE):</b>		Admission to the Bachelor of Education.													
<b>Corequisites (if applicable, or NONE):</b>															
<b>Pre/corequisites (if applicable, or NONE):</b>															
<b>Antirequisite Courses</b> <i>(Cannot be taken for additional credit.)</i> Former course code/number: Cross-listed with: Equivalent course(s): <i>(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)</i>		<b>Course Details</b> Special Topics course: <b>No</b> <i>(If yes, the course will be offered under different letter designations representing different topics.)</i> Directed Study course: <b>No</b> <i>(See <a href="#">policy 207</a> for more information.)</i> Grading System: <b>Credit/No Credit</b> Delivery Mode: <b>May be offered in multiple delivery modes</b> Expected frequency: <b>Annually</b> Maximum enrolment (for information only): <b>32</b>													
<b>Typical Structure of Instructional Hours</b> <table border="1"> <tr> <td>Lecture/seminar</td> <td>15</td> </tr> <tr> <td>Tutorials/workshops</td> <td>30</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td><b>Total hours</b></td> <td><b>45</b></td> </tr> </table>		Lecture/seminar	15	Tutorials/workshops	30							<b>Total hours</b>	<b>45</b>	<b>Prior Learning Assessment and Recognition (PLAR)</b> PLAR cannot be awarded for this course because: Connected to practicum	
Lecture/seminar	15														
Tutorials/workshops	30														
<b>Total hours</b>	<b>45</b>														
<b>Scheduled Laboratory Hours</b> Labs to be scheduled independent of lecture hours: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		<b>Transfer Credit</b> <i>(See <a href="#">bctransferguide.ca</a>.)</i> Transfer credit already exists: <b>Yes</b> Submit outline for (re)articulation: <b>No</b> <i>(If yes, fill in <a href="#">transfer credit form</a>.)</i>													
<b>Department approval</b>		<b>Date of meeting:</b> December 8, 2021													
<b>Faculty Council approval</b>		<b>Date of meeting:</b> May 6, 2022													
<b>Undergraduate Education Committee (UEC) approval</b>		<b>Date of meeting:</b> June 17, 2022													

**Learning Outcomes** *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

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

- Critically analyze strategies and resources found in the B.C. Secondary Science curriculum, especially those which focus on students in grades 8-10.
- Reflect on the goals of science education, science literacy, and science citizenry.
- Explain connections between the Nature of Science (NoS), science content, and science teaching using theories such as Pedagogical Content Knowledge.
- Apply constructivist learning theory for designing learning activities consistent with the big ideas, content, and competencies in the junior secondary grades (grades 8 – 10).
- Implement science activities in the four strands (biology, physics, earth and space, and environmental science) in a community setting using inquiry, science instructional models, and direct instruction.
- Demonstrate safe practices in classroom, laboratory, and field settings.
- Integrate the use of information technology in science lessons.
- Create strategies for assessing understanding of content and competencies in secondary science for diverse levels of abilities.
- Integrate Indigenous content, resources, and pedagogy in the design of science activities.
- Reflect on social justice issues, ethical practices, and environmental concerns in relation to science education.

**Recommended Evaluation Methods and Weighting** *(Evaluation should align to learning outcomes.)*

Assignments:	100%		
	%	%	%

**Details:**

Assignments: lesson plans (30%), in class teaching (30%), inquiry (20%), reflection (20%)

**NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.**

**Texts and Resource Materials** *(Include online resources and Indigenous knowledge sources. [Open Educational Resources](#) (OER) should be included whenever possible. If more space is required, use the [Supplemental Texts and Resource Materials form](#).)*

Type	Author or description	Title and publication/access details	Year
1. Online resource	Ministry of education	BC science curriculum	2021
2. Textbook	E. Pedretti & K. Bellomo	Explorations in Secondary School Science: Practice and Theory. Pearson	2014
3.			
4.			
5.			

**Required Additional Supplies and Materials** *(Software, hardware, tools, specialized clothing, etc.)*

Science curriculum kits

**Course Content and Topics**

- How constructivist learning theory influences classroom practice
- The nature of science and learning in science
- Pupil's conceptions in science and implications for citizenship
- Inquiry teaching, models, and strategies for science learning
- Direct instruction and strategies for science learning
- Information technology to promote science learning
- Basics of safety in the classroom, laboratory, and field
- The local community as a location for science and stewardship activities
- Lesson planning and unit planning
- Using a range of on-going assessment strategies for science activities
- Equity, diversity, and inclusion issues in science teaching
- B.C. Secondary Science curriculum and Science Safety Resource Manual
- Application of science into other subject areas, including social studies, mathematics, health, consumerism, community planning, etc.
- Resources available for science teaching (e.g., Project Wild, Streamkeepers, etc.)
- Basic information on the curriculum content organizers taught in a B.C. secondary schools.
- Indigenous resources, pedagogy, and content relevant to the science curriculum